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IN THE SUPERIOR COURT OF THE STATE OF ARIZONA
IN AND FOR THE COUNTY OF MARICOPA

CENTER FOR BIOLOGICAL DIVERSITY, ROBIN SILVER, Plaintiffs, vs. ARIZONA GAME AND FISH COMMISSION; ARIZONA GAME AND FISH DEPARTMENT; TOM FINLEY, in his capacity as Director of the ARIZONA GAME AND FISH DEPARTMENT; Defendants.	Case No. **VERIFIED COMPLAINT FOR ORIGINAL SPECIAL ACTION (A.R.S. § 12-2021), DECLARATORY (A.R.S. § 12-1831) AND INJUNCTIVE (A.R.S. § 12-1801) RELIEF** Assigned to:

Pursuant to A.R.S. §§ 12-2021, 12-1831, 12-1801, and Rule 7, *Arizona Rules of Procedure for Special Actions* ("RPSA"), Plaintiffs Center for Biological Diversity and Robin Silver, by and through undersigned counsel, bring this verified complaint for original special action relief, declaratory relief and injunctive relief and allege as follows:

SUMMARY OF THE CASE

1. The Arizona Game and Fish Commission ("Commission") and the Arizona Game and Fish Department ("AGFD" or "Department") have failed to responsibly manage the hunting of the American Mountain Lion (*Puma concolor*) in Arizona and, as a result, under the current AGFD mountain lion sport hunting management scheme, the mountain lion population in Arizona is not sustainable and will become nonviable in the near future.

2. The fact that the current AGFD mountain lion sport hunting management scheme is not sustainable is reflected in the predominant killing of kittens and pre-reproductive juveniles, and by the killing of a scientifically unjustifiable number of adult females.

3. The majority (54%) of mountain lions of known age killed by AGFD-permitted sport hunters between 2018 and 2024 were kittens (≤ 1 year of age) and pre-reproductive juveniles (≤ 2 years of age).

4. 27% of the total 1,937 mountain lions of known age killed by AGFD permitted sport hunters between 2018 and 2024 were kittens (≤ 1 year of age).

5. Only 8% of the mountain lions of known age killed by AGFD permitted sport hunters between 2018 and 2024 were ≥ 6 years of age, or "trophy" age.

6. Three expert PhD population demography modelers, independent of one another, concluded that AGFD's current mountain lion sport hunting management is not sustainable and is leading to a nonviable population in the near future.

7. The modelers conclude that, if the average annual rate of logged kills of Arizona's mountain lions continues, populations will become nonviable in the near future.

8. Defendants' management of Arizona's mountain lion population, through *inter alia* the continued issuance of tags for mountain lion sport hunting, is contrary to law because it violates Defendants' statutory duties to preserve, protect, manage and restore mountain lion populations under A.R.S. § 17-502(a)(3), to enforce the laws for "the protection of wildlife" under A.R.S. § 17-231(A)(4) and to manage 'wildlife resources" "in trust" "for the benefit of all residents and visitors" under A.R.S. § 17-502(a)(1).

9. Defendants' management of Arizona's mountain lion population, through *inter alia* the continued issuance of tags for mountain lion sport hunting, is also arbitrary and capricious, and an abuse of discretion because it is resulting in an unsustainable population facing nonviable population levels in the near future.

10. For the same reasons, Defendants' continued issuance of tags for mountain lion sport hunting also violates the public trust doctrine and the Gift Clause. *See* A.R.S. § 17-502(a)(1) ("Wildlife resources are managed in trust" "for the benefit of all residents and visitors.").

11. Defendants must be ordered to cease issuing mountain lion sport hunting tags until such time as Arizona's mountain lion population has recovered to sustainable reproductive levels.

PARTIES

12. Plaintiff Center for Biological Diversity ("Center") is a non-profit membership corporation with its main office in Tucson, Arizona. The Center is a conservation organization with more than 1.8 million members and online activists dedicated to the protection of endangered species and wild places. The Center works through science, law, and policy to secure a future for all species, great or small, hovering

on the brink of extinction. The Center is actively involved in species and habitat protection issues worldwide, including throughout the southwestern United States, and actively advocates for increased protections for species and their habitats and landscape connectivity in Arizona. The Center and its members care deeply about mountain lions in the State of Arizona and have been involved in activities seeking to protect the species from extinction for more than three decades. In addition, the Center and its members derive substantial aesthetic, recreational, and educational value from observing and studying mountain lions in their natural habitat. The challenged agency action threatens to diminish the abundance and visibility of mountain lions in the areas. *See* Declaration of Robin Silver, attached as **Exhibit A**, ¶¶ 1-17.

13. Plaintiff Robin Silver is a co-founder, board member, and member of the Center. He is an Arizona native who has lived in Arizona for most of his life and is currently a resident of Arizona. The Center, Dr. Silver and his colleagues champion the conservation and habitat protection of the American mountain lion. Dr. Silver is a professional wildlife photographer and a retired emergency-room physician. As a professional wildlife photographer, Dr. Silver derives substantial aesthetic, recreational, educational, and economic value from observing, studying, and photographing mountain lions in their natural habitat. The challenged agency action threatens to diminish the abundance and visibility of mountain lions in the areas Dr. Silver regularly visits for those purposes, thereby impairing his ability to pursue his profession and enjoy the unique experiences that the species affords. *See* **Exhibit A,** ¶¶ 1-17.

14. Plaintiffs have standing under the mandamus statute. A.R.S. § 12-2021 allows a "party beneficially interested, to compel, when there is not a plain, adequate and

speedy remedy at law, performance of an act which the law specially imposes as a duty resulting from an office, trust or station."

15. Plaintiffs have standing under the Uniform Declaratory Judgment Act ("UDJA"). A.R.S. § 12-1832 says that any party "whose rights, status or other legal relations are affected by a statute" may bring an action to determine "any question of construction" of the statute, and "obtain a declaration of rights, status or other legal relations thereunder." "The UDJA is remedial and therefore liberally construed." *Mills v. Arizona Bd. of Tech. Registration*, 253 Ariz. 415, 423, ¶ 25 (2022).

16. Plaintiffs have standing for injunctive relief. A.R.S. § 12-1801.

17. Defendant Arizona Game and Fish Commission ("the Commission") is a five-member board appointed by the governor, in which "control of the Department" is vested, pursuant to A.R.S. § 17-201(A).

18. Defendant AGFD is the state agency that is responsible for administering the law of the state relating to wildlife pursuant to A.R.S. § 17-201(A).

19. Defendant Tom Finley is the Director of the Department, appointed by the Commission to serve as the Department's chief administrative officer, pursuant to A.R.S. § 17-211. Mr. Finley "shall … have general supervision and control of all activities, functions and employees" of the Department." A.R.S. § 17-211(D)(1).

JURISDICTION AND VENUE

20. This Court has jurisdiction over this action under A.R.S. § 12-123, the Arizona Constitution, Article VI, §§ 14, VI, §18 ("[t]he superior court or any judge thereof may issue writs of mandamus, quo warranto, review, certiorari, [or] prohibition…"),

A.R.S. § 12-2021, Ariz. R.P. Spec. Act. ("RPSA") (original special action), A.R.S. § 12-1831 (declaratory relief) and A.R.S. § 12-1801 (injunctive relief).

21. Venue is proper in this Court under A.R.S. § 12-401(15) and RPSA 6(a)(1).

ARIZONA LAW GOVERNING HUNTING OF MOUNTAIN LIONS

22. The Arizona Legislature bestowed the responsibility of protecting Arizona's wildlife on the Commission. *See* A.R.S. § 17-231(A)(4) (the Commission shall "be responsible for the enforcement of laws for the protection of wildlife."); A.R.S. § 17-231(B)(2) (the Commission may "establish game management units or refuges for the preservation and management of wildlife."). (All emphases added unless otherwise noted.)

23. The Commission is responsible for adopting rules "necessary to carry out the provisions and purposes of this title; and establish policies and long-range programs for the management, preservation and harvest of wildlife." A.R.S. § 17-231(A)(1) and (2).

24. The commission is responsible for determining hunting seasons and bag limits. A.R.S. § 17-234 (the Commission "shall by order open, close or alter seasons and establish bag and possession limits for wildlife.").

25. The Arizona Legislature found and declared as public policy that "The preservation, protection, management and restoration of wildlife contributes immeasurably to the aesthetic, recreational and economic aspects of such natural resources." A.R.S. § 17-502(a)(3).

26. "Under the common law, the title to game animals and fish was held to be in the state for the use and benefit of its citizens, and the killing or taking and use of such game was subject to governmental control and regulation in the interest of the common

good." *Frazier v. Terrill*, 65 Ariz. 131, 136 (1946). "These principles passed to America with the rest of the common law of England and, except as changed by statute or contrary to our customs or conditions, are the law of Arizona." *Id.*

27. "Wildlife, both resident and migratory, native or introduced, found in this state … are the property of the state …" A.R.S. § 17-102.

28. The Arizona Legislature found and declared as public policy that "Wildlife resources are managed in trust by the respective states for the benefit of all residents and visitors." A.R.S. § 17-502(a)(1).

29. AGFD issues "hunt permit-tags" for various species, referred to as "tags."

30. The Commission allows for the hunting of mountain lions. *See* A.R.S. § 17-101(24); A.A.C. R 12-4-304(B)(7); Commission's 2026 Hunting Regulations, at 46-47, referring to Commission Order No. 10. *See* **Exhibit B** hereto.

31. Arizona prohibits the hunting of "spotted kittens and females accompanied by kittens."

FACTUAL ALLEGATIONS

32. Plaintiffs reallege all paragraphs above and below as if fully stated herein.

33. Mountain lions used to be found throughout the United States, but due to bounty hunts in the early 1900s and threats such as persecution, trophy hunting, poaching, retaliation in response to livestock depredation, kitten orphaning, poisoning and habitat loss and fragmentation, mountain lions are now only found in 15 western states. *See* *https://mountainlion.org/about-mountain-lions/.*

34. Mountain lion (*Puma concolor*). Photo taken in Arizona by Plaintiff Robin Silver. *See* **Exhibit A**, ¶11.

35. According to AGFD, mountain lions may breed at any time of the year, with kittens born in any month; however, in North America, the majority of births occur from May through October. Females typically first breed around 2½ to 3 years of age. Litter sizes of 2-4 are common, and females may raise kittens in consecutive years, though about 1½ years between litters is more common. Young remain with the mother for about 11-18 months, learning the skills necessary to survive independently. *See* *https://www.azgfd.com/species/mountain-lion/*

36. Young lions, called kittens or cubs, have spots that fade through their first year of life. *See* *https://gfp.sd.gov/userdocs/docs/Mountain_Lion_Hunter_Guide_FINAL.PDF* .

37. The hunting season is nine months long and kittens stay with their mothers for 11 to 18 months.

38. AGFD "harvest" data is available on its website, https://www.azgfd.com/hunting/hunt-draw-and-licenses/harvest-reporting/. The data, 2018-2024 is attached marked **Exhibit C**.

39. A complete set of AGFD aging data 2018-2024 is attached marked **Exhibit D** (names of individual hunters redacted).

40. According to AGFD, from 2018-2024, the majority (54%) of mountain lions of known age killed by AGFD permitted sport hunters were kittens (≤ 1 year of age) and pre-reproductive juveniles (≤ 2 years of age). *See* **Ex. D**.

41. According to AGFD, from 2018 – 2024, 27% of the total 1,937 mountain lions of known age killed by AGFD permitted sport hunters were kittens (≤ 1 year of age). *See* **Ex. D**.

42. According to AGFD, from 2018 – 2024, 54% of the total 1,937 mountain lions of known age killed by AGFD permitted mountain lion sport hunters were ≤ 2 years of age with the average ranging from 48% to 60% of the total of mountain lions of known age killed by permitted mountain lion sport hunters (2018: 53%; 2019: 47%; 2020: 57%; 2021: 58%; 2022: 60%; 2023: 53%; and, 2024: 58%). The total number of deaths is much higher as many kittens and juveniles inevitably died when their mother was killed.

43. According to AGFD, from 2018 – 2024, 41% of the mountain lions killed by AGFD permitted sport hunters were females. *See* **Ex. D**.

44. Adult female survival is the demographic parameter most strongly influencing population growth. *See* Lambert et al (2006)[1] and Benson et al (2016).[2]

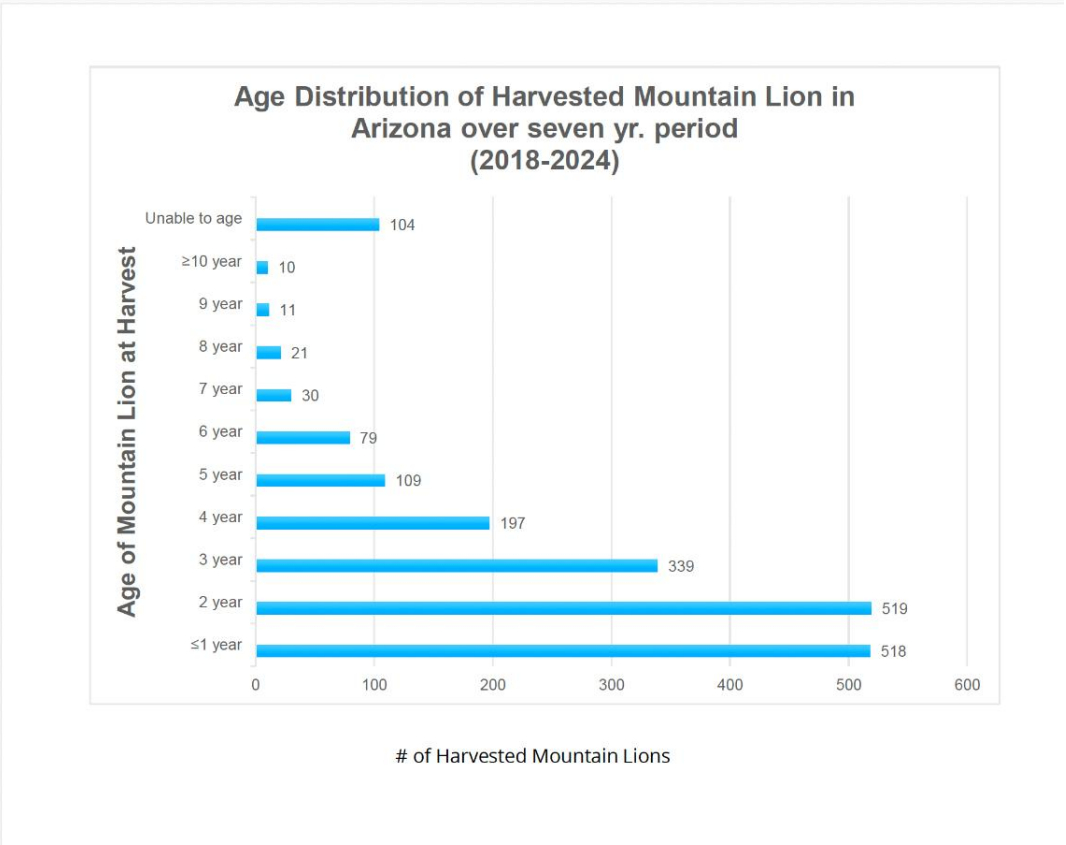
45. When the killing of adult females exceeds 20% of the total number of mountain lions, mountain lion abundance is greatly reduced. *See* Logan and Runge (2020).[3]

46. For the period between 2018-2024, kill data from AGFD's website presented in graph form illustrates the raw numbers of kittens and juveniles, versus older lions, killed by AGFD permitted sport hunters:

[1] https://biologicaldiversity.org/programs/public_lands/pdfs/report-20060000-Cougar-Population-Dynamics-and-Viability-in-the-Pacific-Northwest-LAMBERT-et-al-FEMALE-IMPORTANCE.pdf).

[2] https://biologicaldiversity.org/programs/public_lands/pdfs/report-20160000-Interactions-between-demography-genetics-and-landscape-connectivity-increase-extinction-probability-BENSON-et-FEMALE-IMPORTANCE.pdf).

[3]https://www.wildfelid.org/content/files/TechPub54EffectsOfHuntingOnAPumaPopulationInCO_2020.pdf).

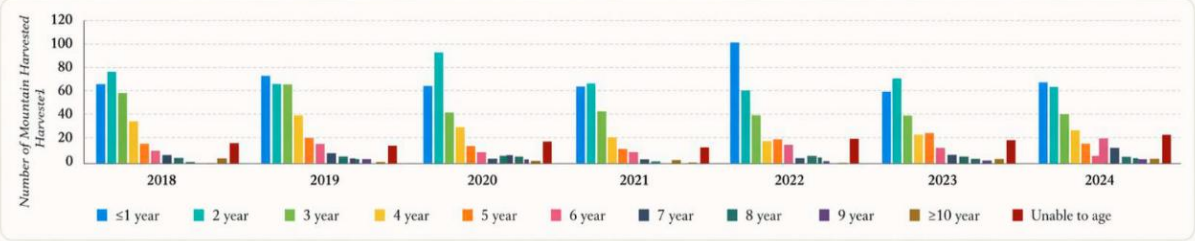


47. The following table and graph show the annual age distribution of the mountain lions killed by AGFD permitted sport hunters 2018-2024:

Population Age Structure of Harvested Mountain Lions in Arizona

2018 — 2024

Age Class	2018	2019	2020	2021	2022	2023	2024
≤1 year	67	74	66	68	101	71	71
2 year	77	69	94	74	63	74	68
3 year	60	69	45	48	39	38	40
4 year	33	40	34	21	17	24	28
5 year	12	19	12	10	16	24	16
6 year	5	14	8	10	12	10	20
7 year	3	6	1	2	2	5	11
8 year	1	3	4	1	4	4	4
9 year	0	2	3	0	1	2	3
≥10 year	2	0	1	2	0	2	3
Unable to age	13	7	14	10	18	19	23
Cementum Record Total	273	303	282	246	273	273	287
Hunter Harvest Total	272	320	281	260	297	286	300
(+) Other	11	12	12	13	13	8	10
Depredation Event	9	33	36	17	50	17	27
Sum Total Harvest	292	365	329	290	360	311	337



48. According to AGFD, from 2018 – 2024, only 8% of the mountain lions killed by AGFD permitted sport hunters were ≥ 6 years of age, meaning that very few mountain lions are surviving to "trophy" age.

49. From 2018 to 2024, AGFD sold between approximately 10,000 to 12,000 mountain lion kill tags per year (2018: 11,553; 2019: 11,228; 2020: 11,514; 2021: 12,033; 2022: 10,458; 2023: 10,793; and 2024: 11,509).

50. AGFD establishes quotas for number of lions harvested depending on the area.

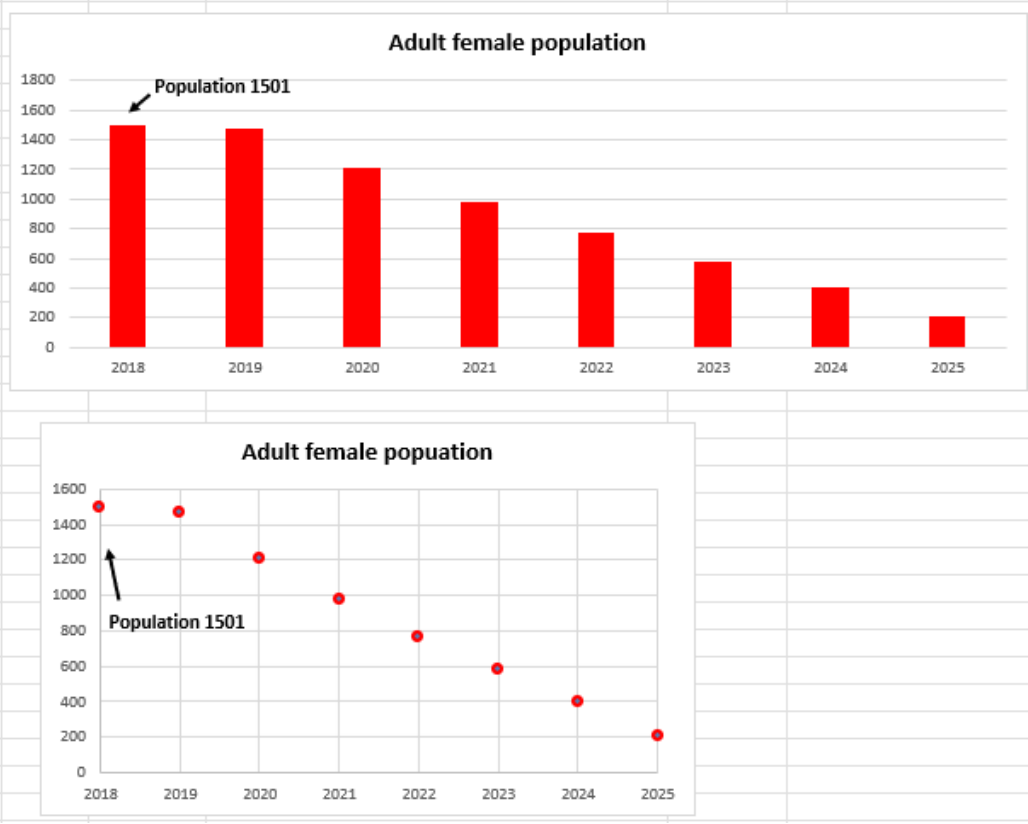
51. Based on AGFD's "Mountain Lion Harvest Thresholds And Zone Status" data, between 2021 and 2026, AGFD permitted mountain lion sport hunters have not been able to fulfill the Commission's and the Department's yearly mountain lion sport killing quotas as quotas have not been achieved in 50 – 81% of the mountain lion hunting zones (2021-22: 11/15 = 73%; 2022-23: 9/16 = 56%; 2023-24: 9/17 = 53%; 2024-2025 13/16 = 81%; 2025/2026 8/16 = 50%). *See* **Exhibit E** hereto.

52. Using AGFD's current data sheet used to estimate Arizona's lion population to set the annual mountain lion sport hunting quota (**Exhibit F)**, and starting with AGFD's estimated total Arizona mountain lion population total in 2018 based on AGFD's 2018-2019 "annual harvest limits" (**Ex. B** hereto) and AGFD's 14% harvest rate (**Exhibit G** hereto), three independent, expert Ph.D. population demography modelers evaluated the sustainability and viability of AGFD's mountain lion sport hunting management scheme. The models were limited to 2018-2024 because mountain lion sport hunting quotas were instituted in 2018, and 2018-2024 are the only recent years with complete data.

53. Each of the three expert modelers, independent of one another, conclude that AGFD's current mountain lion sport hunting management is not sustainable and will lead to a nonviable population in the near future.

54. All three modelers, independent of one another, conclude that AGFD's current mountain lion sport hunting management is not sustainable and will lead to a nonviable population in the near future.

55. The output data from the model run by Dr. James G. Sanderson (attached to **Exhibit H** hereto), is illustrated in the following graphs:



56. Dr. Sanderson further explains his modeling in his Declaration . *See* **Exhibit H** hereto, ¶¶13-19 .

57. The summary data from the model run by Dr. Martin F.J. Taylor (**EXHIBIT I**) concludes:

> "A simulation with 50 iterations of the model over a 41 year time frame confirms that based on known life tables, if the average annual rate of logged kills of AZ pumas reported since 2018 were to be continued regardless of population size, populations would fall to functional extirpation in about 15 years in Arizona's non-tribal lands (Fig. 5 right). … Note that this model ignores sources of human caused mortality other than natural mortality and sport hunting: - including management kills, depredation kills by ranchers and unreported kills…"
>
> The only way extirpation could be avoided if current levels of sport hunting were allowed to continue is if immigration is replacing individuals that have been killed.

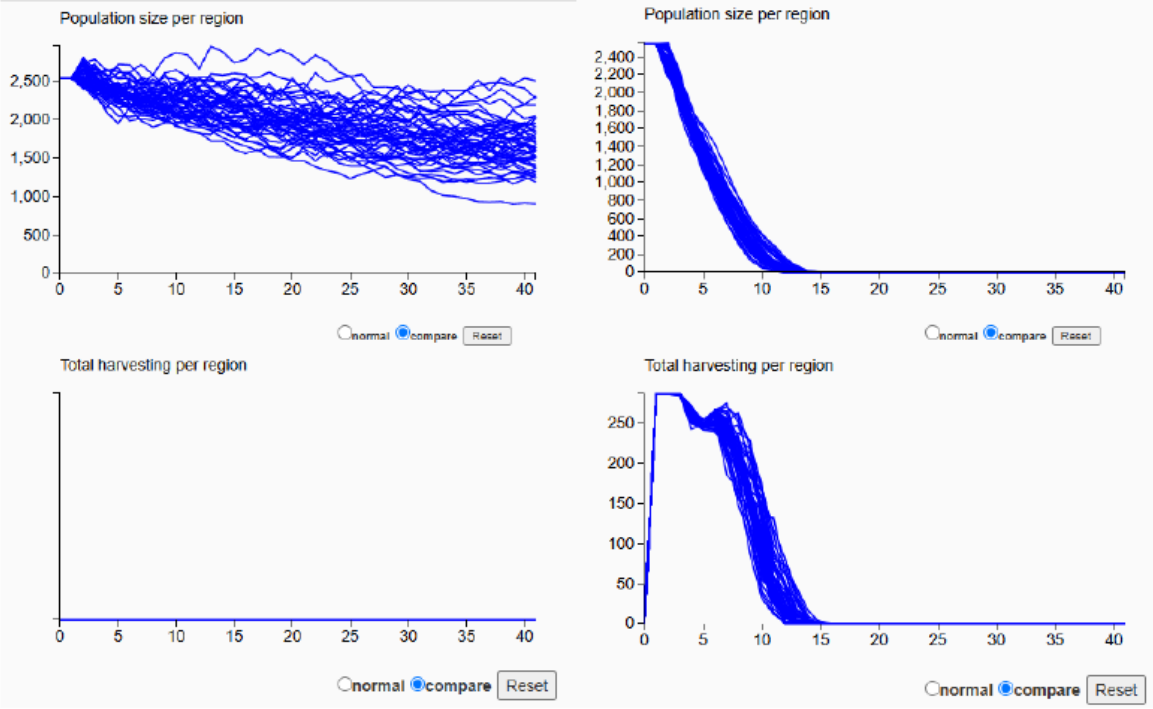


Fig 5. Population trajectories of two sets of 50 iterations of a *Numerus* simulation model of AZ puma single region population LEFT without hunting and RIGHT under current annual sport kill rates. See Appendix 1 for parameters. Note that due to model structure, harvest is not applied in year zero, only starting in year 1.

"Conclusions:

- Annual logged kills have been in a long-term upward trend in AZ according to AGFD data.
- The proportion of annual kills in the less than 3-year old kitten and young adult class also shows an upward trend.

- The annual kill level in AZ (18%+) as a proportion of population exceed levels (15%) shown in an experiment in CO to result in a 35% population crash over four years.
- In the absence of immigration, current kill levels – if continued – would cause the Arizona population to crash to extirpation in about 15 years based on AGFD survivorship estimates (Howard et al, 2020) and optimistic birth rates of 2.5-3 kittens per adult female. Moreover, at these birth rates, the population would slowly decline even without annual hunting.
- If the population is in fact stable, it is likely to be a result of immigration from neighboring source populations with AZ acting as sink.
- Ongoing sport hunting is difficult to justify since the common reasons given have been shown to have little empirical support."

58. The model from Northwest Mathematics **(Exhibit J)** concludes:

> "The model is run at every point of the grid and the minimum kitten survival computed there from the AGFD-stated abundance and kill data; the contours then let a reader judge for themselves which cells are biologically defensible. As the next section sets out, few are."
>
> "The conclusion that survives across the whole band and both criteria ["static" and "projected"] is that over most of the plausible rate region, and at every female fraction the literature supports, the current quotas require kitten survival that the published record does not supply."
>
> "… the statement that current quotas are sustainable requires either kitten survival, or some other vital rate governing fecundity or survival, to be higher than the published record supports. On that basis the quotas appear to be likely causing decline as defined above ["80% loss within twelve years of today"]."

59. Former AGFD Large Carnivore (bears and mountain lions) Biologist Dr. Ron Thompson supports the modeling findings of Dr. Sanderson, Dr. Taylor, and Dr. Gelbaum, and agrees that current AGFD mountain lion sport hunting management is leading to an unsustainable and a nonviable mountain lion population in Arizona in the near future. *See* **Exhibit K** hereto, ¶25.

60. Dr. Thompson states in his Declaration:

> "I have reviewed the demography models done by Dr. Jim Sanderson, Dr. Martin Taylor, and Dr. Zachary Gelbaum. I agree with the conclusions of all three studies that under the current AZGFD mountain lion sport hunting strategy, the mountain lion population in the State of Arizona will be unsustainable, nonfunctional and nonviable in the near future.

61. Mammalogy professors Dr. Aletris Neils, and Dr. Angela Darnell Baker agree with and support the modeling findings of Dr. Sanderson, Dr. Taylor, and Dr. Gelbaum, and agree that current AGFD mountain lion sport hunting management is leading to an unsustainable and nonviable mountain lion population in Arizona in the near future. *See* **Exhibit L,** ¶14; **Exhibit M**, ¶10.

62. AGFD is aware of the above facts and continues to mismanage Arizona's mountain lion population through *inter alia* the continued issuance of tags for mountain lion sport hunting.

COUNT ONE

SPECIAL ACTION (A.R.S. § 12-2021)

MISMANAGEMENT OF MOUNTAIN LIONS THROUGH CONTINUED ISSUANCE OF MOUNTAIN LION TAGS IS IN EXCESS OF JURISDICTION, AN ABUSE OF DISCRETION, AND ARBITRARY AND CAPRICIOUS, AND CONTRARY TO LAW

63. Plaintiffs reallege all paragraphs above and below as if fully stated herein.

64. A court may vacate agency action where the body proceeded, or threatens to proceed, "without, or in excess of, jurisdiction or legal authority," or "made a decision that was arbitrary and capricious or an abuse of discretion, which can include a legal error." RPSA Rule 4(b) and (c).

65. An "agency abuses its discretion when it misapplies the law or fails to consider the relevant facts." *Simmons v. Arizona Dep't of Econ. Sec.*, 254 Ariz. 109, 111, ¶ 10 (App. 2022), review denied (Apr. 7, 2023) (internal citations omitted).

66. "Abuse of discretion is discretion manifestly unreasonable, or exercised on untenable grounds, or for untenable reasons." *Tilley v. Delci*, 220 Ariz. 233, 238, ¶ 15 (App. 2009).

67. "Arbitrary action" is "unreasoning action, without consideration and in disregard of the facts and circumstances." *Maricopa Cnty. Sheriff's Off. v. Maricopa Cnty. Emp. Merit Sys. Comm'n*, 211 Ariz. 219, 222, ¶ 14 (2005) (internal citations omitted). "An arbitrary action is one taken capriciously or at pleasure, or an action taken without adequate determining principle." *Id.*

68. AGFD's management of Arizona's mountain lion population, through *inter alia* the continued issuance of mountain lion hunting tags, is arbitrary and capricious, and an abuse discretion (RPSA 4(c)), because AGFD disregards its own data showing that continued hunting of kittens, juveniles, and females at the permitted rates will lead to extirpation of the species from Arizona.

69. AGFD's management of Arizona's mountain lion population, through *inter alia* the continued issuance of mountain lion hunting tags, is also contrary to law (RPSA 4(b) and (c)) because the Commission and AGFD violate their statutory duties to preserve, protect, manage and restore mountain lion populations under A.R.S. § 17-502(a)(3), to enforce the laws for "the protection of wildlife" under A.R.S. § 17-231(A)(4) and to manage 'wildlife resources" "in trust" "for the benefit of all residents and visitors" under A.R.S. § 17-502(a)(1).

70. Because mountain lions are owned by the State for the benefit of the public as a whole, including future hunters, AGFD's authority is one of stewardship rather than disposal. The agency may regulate harvest but may not authorize the depletion of a publicly owned wildlife resource in a manner inconsistent with its duty to conserve that resource for future generations.

71. The resumption of mountain lion sport hunting in Arizona should only be considered when self-sustaining reproduction and population recovery have been established and verified by surveys based on accepted camera and capture-recapture techniques as described in detail by *Murphy, et al.*, in "Improving estimation of puma (*Puma concolor*) population density: clustered camera-trapping, telemetry data, and generalized spatial mark-resight models."[4]

72. Defendants must be ordered to suspend the issuance of mountain lion hunting tags to allow for the recovery of the population and for the re-establishment of sustainable reproduction.

COUNT TWO

SPECIAL ACTION (A.R.S. § 12-2021)

MISMANAGEMENT OF MOUNTAIN LIONS THROUGH CONTINUED ISSUANCE OF MOUNTAIN LION TAGS VIOLATES THE PUBLIC TRUST DOCTRINE

73. Plaintiffs reallege all paragraphs above and below as if fully stated herein.

74. AGFD's management of Arizona's mountain lion population, through *inter alia* the continued issuance of mountain lion hunting tags, is in excess of jurisdiction or legal authority (RPSA 4(b)) because AGFD acts in violation of the public trust doctrine.

[4] https://www.nature.com/articles/s41598-019-40926-7.

75. There is no doubt that AGFD holds and manages Arizona's mountain lion population "in trust" "for the benefit of all residents and visitors." A.R.S. § 17-502(a)(1).

76. That AGFD must manage Arizona's mountain lion population in trust is reinforced by legislative policy: "The preservation, protection, management and restoration of wildlife contributes immeasurably to the aesthetic, recreational and economic aspects of such natural resources." A.R.S. § 17-502(a)(3).

77. AGFD holds title to mountain lions "for the use and benefit of its citizens" and must regulate it "in the interest of the common good." *Frazier v. Terrill*, *supra*, at 136.

78. The State's ownership of wildlife is thus not proprietary but fiduciary. Wildlife is held in trust for present and future generations of Arizonans.

79. Defendants acknowledge that they manage wildlife resources in trust. *See* AGFD website "The Need For Wildlife Management" ("To ensure Arizona's wildlife will be around for future generations to enjoy, the Department continues to follow the principles of this model by maintaining that wildlife is managed in trust for the people");[5] *see* AGFD brochure North American Model of Wildlife Conservation ("Wildlife is Held in the Public Trust … The public trust doctrine means that wildlife belongs to everyone.");[6] *see* AGFD publication Arizona Game and Fish Department Transition ("The Department holds the state's wildlife in public trust" and "The Commission and Department manage wildlife in

[5] https://www.azgfd.com/wildlife-conservation/the-need-for-wildlife-mangement/?utm_source=chatgpt.com

[6] (https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/hunting/NAM%20Brochure.pdf?utm_source=chatgpt.com

accordance with the North American Model of Wildlife Conservation wherein wildlife is held in public trust…").[7]

80. "The public trust doctrine is a constitutional limitation on legislative power to give away resources held by the state in trust for its people." *San Carlos Apache Tribe v. Superior Ct. ex rel. Cnty. of Maricopa*, 193 Ariz. 195, 215, ¶ 52 (1999).

81. The public trust doctrine ("Doctrine") is an "ancient doctrine of common law [that] restricts the sovereign's ability to dispose of resources held in public trust." *Arizona Ctr. For L. In Pub. Int. v. Hassell*, 172 Ariz. 356, 364 (App. 1991).

82. In Arizona, the Doctrine has been extended to state trust land located under navigable waterways. *See Hassel, supra*; and *see Defs. of Wildlife v. Hull*, 199 Ariz. 411, 417 (App. 2001) ("Lands located under Arizona's navigable waterways are held by the state in trust for the people of Arizona.")

83. "Although Arizona law establishes the legal framework for the Doctrine, public trust jurisprudence in Arizona remains almost as nascent as when this Court described the legal landscape over twenty years ago." *Butler ex rel. Peshlakai v. Brewer*, No. 1 CA-CV 12-0347, 2013 WL 1091209, at *3 (Ariz. Ct. App. Mar. 14, 2013) at ¶ 16.

84. "The substance of the Doctrine, including what resources are protected by it, is from the inherent nature of Arizona's status as a sovereign state." *Butler, supra,* at ¶ 24. It is "within the power of the judiciary to determine the threshold question of whether a particular resource is a part of the public trust subject to the Doctrine," and the courts must

[7] https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/hunting/NAM%20Brochure.pdf?utm_source=chatgpt.com

"also determine whether based on the facts there has been a breach of the trust." *Baker* at ¶ 25.

85. "While public trust jurisprudence in Arizona has developed in the context of the state's interest in land under its waters, we reject Defendants' argument that such jurisprudence limits the Doctrine to water-related issues." *Baker* at ¶ 26.

86. "Arizona courts have never made such a pronouncement [that the Doctrine applies *only* to Arizona's navigable streambeds] nor have the courts determined that the atmosphere, or any other particular resource, is *not* a part of the public trust." *Baker* at ¶ 26.

87. "The fact that the only Arizona cases directly addressing the Doctrine did so in the context of lands underlying navigable watercourses does not mean that the Doctrine in Arizona is limited to such lands. Any determination of the scope of the Doctrine depends on the facts presented in a specific case." *Baker* at ¶ 26.

88. In *Baker*, the Court of Appeals "assume[d] without deciding that the atmosphere is a part of the public trust subject to the Doctrine." *Baker* at ¶ 27.

89. In *Baker*, the plaintiff argued for "including the atmosphere within the public trust" "based on a definition of the public trust as applying to a resource for which all citizens depend and share and which cannot be divided for purposes of private ownership." *Baker* at ¶ 27, fn. 5. By contrast, in the present case, wildlife resources are expressly declared to be held "in trust." A.R.S. § 17-502(a)(1).

90. "Just as private trustees are judicially accountable to their beneficiaries for dispositions of the res, so the legislative and executive branches are judicially accountable

for their dispositions of the public trust." *See Hassel, supra*, at 367 (internal citations omitted).

91. "The beneficiaries of the public trust are not just present generations but those to come." *Hassel* at 367.

92. "The check and balance of judicial review provides a level of protection against improvident dissipation of an irreplaceable res." *Hassel* at 367.

93. "Final determination whether the alienation or impairment of a public trust resource violates the public trust doctrine will be made by the judiciary." *Hassel* at 367.

94. A "court will subject legislative dispensations of state natural resource holdings to a high and demanding standard of review." *Hassel, supra*, at 367 (internal citations omitted).

95. "When a court reviews a dispensation of public trust property," two elements must be shown—"public purpose and fair consideration." *Hassel* at 368.

96. Because "public trust land is not like other property ... the state may not dispose of trust resources except for purposes consistent with the public's right of use and enjoyment of those resources, [which means that] any public trust dispensation must also satisfy the state's special obligation to maintain the trust for the use and enjoyment of present and future generations." *Hassel* at 368.

97. "The states owe a fiduciary obligation to the general public with regard to the management of their sovereign resources." *Defs. Of Wildlife, supra,* at 418, ¶ 12 (internal citations omitted).

98. "The quality of the hunting in Arizona is in large part a result of the conservation efforts supported by Arizona citizens and administered by the Arizona

Department of Game and Fish." *Conservation Force, Inc. v. Manning*, 301 F.3d 985, 989 (9th Cir. 2002).

99. "In the case of both deer and elk, the maintenance of the state's herds has been ensured over the years through strict regulation of the number of hunting permits, known as "tags," issued each year." *Id.*

100. "It is undisputed that Arizona's game supply is limited and that its continued vitality is a product of the State's conservation efforts." *Id.* at 996.

101. "The protection of wildlife and other natural resources of a state are some of the state's most important interests." *Id.* at 996.

102. "Unquestionably the States have broad trustee and police powers over wild animals within their jurisdictions." *Kleppe v. New Mexico,* 426 U.S. 529, 545 (1976), quoted in *Manning, supra,* at 996.

103. Here, AGFD knows that, since 2018, the percentage of mountain lions less than two years of age killed by AGFD permitted sport hunters is 54% (*see* **Ex. D.)**.

104. The fact that 54% of mountain lions killed by sport hunters 2018-2024 were kittens and pre-reproductive juveniles, combined with the fact that hunters are not reaching kill quota thresholds (**Ex. E**), shows that the population of adult mountain lions has already declined to the point that sport hunters are unable to find mature adults to kill.

105. The decline of Arizona's mountain lion population is the result of (1) the excessive and cumulative killing of mountain lion kittens less than 1 year of age and of pre-reproductive juvenile mountain lions two years or less of age leading to diminished recruitment of reproductive mountain lions, as well as to loss of the future population and

(2) the result of the consistently excessive and cumulative killing of reproductive females leading to diminished reproductive capacity in the population.

106. In spite of the data above, Defendants continue to mismanage mountain lion populations through *inter alia* the continued issuance of mountain lion hunting tags.

107. Arizona's wildlife is a part of the public trust subject to the Doctrine. *See* A.R.S. § 17-502(a)(1) ("wildlife resources are managed in trust" "for the benefit of all residents and visitors.").

108. AGFD is "judicially accountable for [its] dispositions of the public trust." *See Hassel, supra*, at 367.

109. AGFD is judicially accountable for the "improvident dissipation of an irreplaceable res." *Hassel* at 367.

110. When AGFD manages Arizona's mountain lion population, through *inter alia* the continued issuance of mountain lion hunting tags, it is disposing of a trust resource, namely, mountain lions.

111. AGDF's management of Arizona's mountain lion population, through *inter alia* the continued issuance of mountain lion hunting tags, does not satisfy *Hassel's* two elements - public purpose and fair consideration. *Hassel* at 368.

112. AGDF's management of Arizona's mountain lion population, through *inter alia* the continued issuance of mountain lion hunting tags, does not satisfy the public purpose element, because it is inconsistent with the public's right of use and enjoyment of those resources, because it does not satisfy AGFD's special obligation to maintain the trust for the use and enjoyment of present and future generations. *Hassel* at 368.

113. AGFD owes a fiduciary obligation to the general public with regard to the management of their sovereign resources, namely, wildlife resources, including mountain lions. *Defs. Of Wildlife, supra,* at ¶ 12.

114. AGFD's management of Arizona's mountain lion population, through *inter alia* the continued issuance of mountain lion hunting tags, contravenes the gift clause (*see* below) and the public trust doctrine.

115. AGFD's management of Arizona's mountain lion population, through *inter alia* the continued issuance of mountain lion hunting tags, impairs a public trust resource, in violation of the public trust doctrine.

116. By managing Arizona's mountain lion population, through *inter alia* the continued issuance of mountain lion hunting tags, AGFD is authorizing harvest levels that threaten the long-term viability of the mountain lion population, thereby improperly disposing of a public trust resource, in violation of the Gift Clause and the Doctrine.

117. Defendants must be ordered to suspend the issuance of mountain lion hunting tags to allow for the recovery of the population and for the re-establishment of sustainable reproduction.

COUNT THREE

DECLARATORY RELIEF (A.R.S. § 12-1831)

MANAGING ARIZONA'S MOUNTAIN LION POPULATION TO THE POINT OF UNSUSTAINABILITY AND NONVIABILITY IS A VIOLATION OF THE PUBLIC TRUST DOCTRINE

118. Plaintiffs reallege all paragraphs above and below as if fully stated herein.

119. Plaintiffs are entitled to declaratory relief under A.R.S. § 12-1831 *et seq.*

120. Courts have authority to "declare rights, status, and other legal relations whether or not further relief is or could be claimed. . . . The declaration may be either affirmative or negative in form and effect; and such declarations shall have the force and effect of a final judgment or decree." A.R. S. § 12-1831.

121. For the same reasons Plaintiffs are entitled to special action relief, they are entitled to declaratory relief.

122. The Court is requested to issue a declaratory judgment that Defendants' continued issuance of hunting tags for mountain lions is in excess of its legal authority because it violates the public trust doctrine.

123. In addition or in the alternative, the Court is requested to issue a declaratory judgment that Defendants' management of Arizona's mountain lion population, through *inter alia* the continued issuance of sport hunting tags for mountain lions, is arbitrary, capricious and an abuse of discretion because, in issuing such tags, AGFD disregards its own data showing that continued hunting at the permitted rates is leading to unsustainability and nonviability of the species from Arizona.

124. In addition or in the alternative, the Court is requested to issue a declaratory judgment that Defendants' management of Arizona's mountain lion population, through *inter alia* the continued issuance of sport hunting tags for mountain lions, is contrary to law because, in issuing such tags, Defendants violate their statutory duties to preserve, protect, manage and restore mountain lion populations under A.R.S. § 17-502(a)(3), to enforce the laws for "the protection of wildlife" under A.R.S. § 17-231(A)(4), and/or to manage 'wildlife resources" "in trust" "for the benefit of all residents and visitors" under A.R.S. § 17-502(a)(1).

COUNT FOUR

SPECIAL ACTION AND DECLARATORY RELIEF

MANAGING ARIZONA'S MOUNTAIN LION POPULATION TO THE POINT OF UNSUSTAINABILITY AND NONVIABILITY IS A VIOLATION OF THE GIFT CLAUSE

125. Plaintiffs reallege all paragraphs above and below as if fully stated herein.

126. AGFD's actions violate Arizona's Gift Clause for all the reasons set out above, and Plaintiffs request special action and declaratory relief on this ground.

127. "Neither the State, nor any county, city, town, municipality, or other subdivision of the State shall ever ... make any donation or grant, by subsidy or otherwise, to any individual, association, or corporation....." Arizona Constitution, Art. IX, § 7 ("Gift Clause").

128. "This provision, known as the gift clause, was adopted to prevent governmental bodies from depleting the public treasury by giving advantages to special interests or by engaging in non-public enterprises." *Hassell,* at 367 (internal citations omitted)

129. The Gift Clause "may still be violated if the value to be received by the public is far exceeded by the consideration being paid by the public." *Wistuber v. Paradise Valley Unified School Dist.*, 141 Ariz. 346, 349 (1984).

130. "First, the reviewing court must be satisfied that a dispensation of public funds or property serves a public purpose. Second, the reviewing court must be satisfied that the dispensing public entity has received consideration which is not so inequitable and unreasonable that it amounts to an abuse of discretion, thus providing a subsidy to the private entity." *Id.* (internal citations omitted).

131. "Either objective may be violated by a transaction even though that transaction has surface indicia of public purpose. The reality of the transaction both in terms of purpose and consideration must be considered. A panoptic view of the facts of each transaction is required." *Id.* at 367-368.

132. "The gift clause offers a well-established constitutional framework for judicial review of an attempted legislative transfer of a portion of the public trust." *Id.*

133. "Public trust land is not like other property. ... Because the state may not dispose of trust resources except for purposes consistent with the public's right of use and enjoyment of those resources, any public trust dispensation must also satisfy the state's special obligation to maintain the trust for the use and enjoyment of present and future generations." *Id.* at 368.

134. "There must also be consideration that is not so inequitable or unreasonable that it amounts to an abuse of discretion." *Id.* at 369 (internal citations omitted).

135. "When a state holds a resource which is available for the free use of the general public, a court will look with considerable skepticism upon *any* governmental conduct which is calculated *either* to reallocate that resource to more restricted uses *or* to subject public uses to the self-interest of private parties." *Hassell* at 370, quoting Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention,* 68 Mich.L.Rev. 471, 490 (1972), (emphasis in original).

136. AGFD issues resident mountain lion hunting tags for a nominal fee of $15.

137. The value received by the member of the public who harvests a mountain lion far exceeds the nominal fee being paid by that individual.

138. The consideration received by AGFD in exchange for the value of mountain lions bestowed, the taking of which is leading to unsustainability and nonviability of the species from Arizona, is a violation of the Gift Clause.

139. The consideration that AGFD receives is inequitable and unreasonable and amounts to an abuse of discretion.

140. AGFD's continued mismanagement and issuance of mountain lion hunting tags, which will result in the extirpation of this public asset, does not "maintain the trust for the use and enjoyment of present and future generations." *Hassell,* at 368.

141. The court must "look with considerable skepticism" upon AGFD's conduct, because it "reallocate[s] that resource [Arizona's mountain lion population] to more restricted uses" and "subject[s] public uses to the self-interest of private parties." *Hassell,* at 368.

142. By continuing to issue mountain lion sport hunting tags and allowing hunting of kittens, pre-reproductive juveniles, and female mountain lions, AGFD is authorizing select private parties - sport hunters - to kill at levels that threaten the long-term viability of the mountain lion population, thereby improperly disposing of a public trust resource, in violation of the Gift Clause.

COUNT FIVE

INJUNCTIVE RELIEF (A.R.S. § 12-1801)

DEFENDANTS MUST BE ENJOINED FROM ISSUING MOUNTAIN LION SPORT HUNTING TAGS

143. Plaintiffs reallege all paragraphs above and below as if fully stated herein.

144. A person may obtain an injunction when "it appears that the party applying for the writ is entitled to the relief demanded, and such relief or any part thereof requires

the restraint of some act prejudicial to the applicant;" and "In all other cases when applicant is entitled to an injunction under the principles of equity." A.R.S. § 12-1801(1), (3).

145. An injunction is a decree in equity. *State ex rel. Corbin v. Portland Cement Ass'n*, 142 Ariz. 421, 425 (App. 1984).

146. Municipalities can be enjoined from illegal actions, especially where damages are difficult to measure and irreparable. *See Jarvis v. State Land Dep't City of Tucson*, 104 Ariz. 527, 531 (1969).

147. "While it is true that courts will not interfere by injunction where officers are acting in the execution of a public statute, they may be enjoined from acts which are beyond their power." *Berry v. Foster*, 180 Ariz. 233, 235 (App. 1994)

148. "Every order granting an injunction" must, among other things, "describe in reasonable detail ... the act or acts restrained *or required*." Ariz. R. Civ. P. 65(d).

149. For the reasons set out above, the Court is requested to enjoin Defendants from continuing to issue sport hunting tags for mountain lions until self-sustaining reproduction and population recovery have been established and verified.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs respectfully request that this Court issue an order as follows:

A. Compelling Defendants to suspend the issuance of mountain lion sport hunting permits until such time as self-sustaining reproduction and population recovery have been established and verified;

B. Declaring that Defendants' continued issuance of sport hunting permits for mountain lions is arbitrary, capricious, an abuse of discretion, contrary to law, and/or in excess of their legal authority;

C. Declaring that Defendants' continued issuance of sport hunting permits for mountain lions violates the public trust doctrine;

D. Declaring that Defendants' continued issuance of sport hunting permits for mountain lions violates the Gift Clause;

E. Enjoining Defendants from continuing to issue sport hunting permits for mountain lions until self-sustaining reproduction and population recovery have been established and verified.

F. Directing AGFD to pay the Plaintiffs' reasonable attorneys' fees and costs pursuant to A.R.S. §§ 12-341, 12-348, 12-2030, A.R.S. § 12-1830, or any other applicable provision of law or equitable principle, including the attorney general doctrine;

G. For any other such relief as this Court deems fair and just.

RESPECTFULLY SUBMITTED this 7TH day of August, 2026.

HOFMEYR WANG
By: */s/ Adriane Hofmeyr*
Adriane Hofmeyr
Attorneys for Plaintiffs

VERIFICATION

I, Robin Silver, do state and swear under penalty of perjury and as permitted by Rule 80(c), Ariz. R. Civ. P., as follows:

I am a co-founder and current board member Plaintiff, Center for Biological Diversity. I have read the foregoing Verified Complaint for Original Special Action, Declaratory and Injunctive Relief, and, to the best of my knowledge, information and belief, the statements made therein are true and correct.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 7th day of August 2026.

Robin Silver

EXHIBIT A

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Attorneys for Plaintiffs

IN THE SUPERIOR COURT OF THE STATE OF ARIZONA
IN AND FOR THE COUNTY OF MARICOPA

CENTER FOR BIOLOGICAL DIVERSITY, ROBIN SILVER, Plaintiffs, vs. ARIZONA GAME AND FISH COMMISSION; ARIZONA GAME AND FISH DEPARTMENT; TOM FINLEY, in his capacity as Director of the ARIZONA GAME AND FISH DEPARTMENT; Defendants.	Case No. **DECLARATION OF DR. ROBIN D. SILVER** Assigned to:

I, ROBIN D. SILVER, M.D., pursuant to Arizona Rule of Civil Procedure 80(c), declare, under penalty of perjury, that the following is true and correct:

1. I have personal knowledge of the facts stated herein, and if called upon, I could and would testify competently to them.

2. I reside in Scottsdale, Arizona. I am a parent, an Arizona native, a professional photographer, a conservation advocate, and a retired emergency room

physician. As described below, I personally have been involved in working with and protecting special places in Arizona and imperiled Arizona species since 1987 through photography, public education, engagement with federal, state, and local agencies, and when necessary, through litigation.

3. In 1991, I co-founded the Southwest Center for Biological Diversity, which later became the Center for Biological Diversity ("the Center"). I am now an employee of the Center and a member of its Board of Directors. As a board member, I am responsible for general oversight of the Center's activities.

4. The Center is a non-profit 501(c)(3) public interest, conservation organization with more than 1.8 million members and online activists dedicated to the protection of endangered species and wild places and to the fulfillment of the continuing educational goals of our membership and the general public. The Center's headquarters are located in Tucson, Arizona. Preserving Arizona's imperiled species and their threatened habitats has been a focal point of the Center's work since its founding in 1991.

5. The Center, and its staff and members, research, study, observe, publicize, and seek protection for ecosystems, plants, and animals. The Center, among other things, uses, analyzes, and disseminates information to the public about how agencies' management practices affect species and their habitat. The Center advocates for science based management practices that would ensure their welfare and sustainability into the future.

6. My commitment to the protection of Arizona's imperiled species and special places is a deeply personal one. I have been observing and enjoying both for seventy years.

7. I am a professional photographer specializing in imperiled wildlife and the habitats required for their survival. I have been a professional photographer for more than 30 years. I am a member of the National Press Photographers Association, the Professional Photographers of America, and the American Society of Media Photographers.

8. I first photographed Arizona wildlife professionally in 1987. My photographic website is www.robinsilverphoto.com.

9. I donate photographic images for educational purposes and for the fundraising benefit of those who endeavor to preserve imperiled wildlife and their habitats. I also sell photographic images, including those of mountain lions, for profit.

10. My published contributions have appeared in many national, international, and local magazines, newspapers, and books. Included among these are: Alaska Native News, Albuquerque Journal, American Forests, Arizona Daily Star, Arizona Daily Sun, Arizona Game and Fish Department's Wildlife Views, Arizona Highways, Arizona Republic, AriZoo, Arkansas Democrat Gazette, Associated Press, Audubon Magazine, Avvenimenti, AZPM.ORG, Bear Magazine, Benson News-Sun, Buzzworm Magazine, Chicago Tribune, CNN, Common Cause Magazine, Courthouse News, Cultural Survival Quarterly, Daily Courier, Defender Magazine, Der Spiegel, "E" Magazine, Earth First! Journal, Gila Herald, High Country News, Panorama Magazine (Italy), Payson Roundup, Phoenix Gazette, Phoenix Magazine, Phoenix New Times, Politico, Pressreader, San Francisco Chronicle, Seattle Post-Intelligencer, Sierra Magazine, Sierra Vista Herald, Silver City Daily Press, Spin Magazine, Stern Magazine (Germany), Taos News, The Jurist, Threshold Magazine, Time Magazine, Tucson Citizen, Tucson Magazine, Tucson

Weekly, URSUS, U.S. News and World Report, USA Today, Washington Post, Williams News, White Mountain Independent, Wild Forest Review, and WORLD (wng.org).

11. The following is one of the images that I made of a mountain lion:

© Robin Silver

12. With respect to mountain lions in particular, I have been blessed not only with the opportunity to image them, but also to have had the incredibly good fortune to observe them in close proximity in the wild on three occasions. I have aesthetic, recreational, educational, scientific, spiritual, and photographic interests in Arizona's special places and our native species, like mountain lions.

13. My and our interests are profoundly violated by the Arizona Game and Fish Commission's failure to provide oversight of the Arizona Game and Fish Department's non-sustainable mountain lion sports hunting management practices.

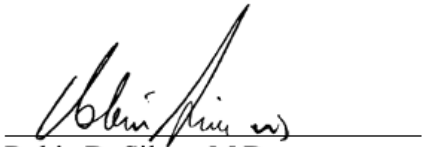
14. The Commission's oversight failure and the Arizona Game and Fish Department's actions have resulted, between 2018-2024, in (1) 54% of the total 1,937 mountain lions of known age killed by AGFD permitted sport hunters being ≤ 2 years of age; (2) 41% of the mountain lions killed being females; and, (3) only 8% of the mountain lions killed by AGFD permitted sport hunters being ≥ 6 years of age, or "trophy" age.

15. As confirmed by the population demography modeling by Drs. Sanderson, Taylor and Gelbaum, the Commission's oversight failure and the Arizona Game and Fish Department's actions have resulted in Arizona's mountain lion population becoming unsustainable and nonviable in the near future.

16. My aesthetic, recreational, educational, scientific, spiritual, and photographic interests in mountain lions are diminished by the Arizona Game and Fish Commission's and Department's actions or lack thereof.

17. I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.

Executed at Scottsdale, Arizona, this 7th day of August, 2026.



Robin D. Silver, M.D.

EXHIBIT B

Arizona Game and Fish Department

2026-2027 Arizona Hunting Regulations

This publication includes the annual regulations for statewide hunting of deer, fall turkey, fall javelina, bighorn sheep, fall bison, fall bear, mountain lion, small game, sandhill crane and other huntable wildlife.

The hunt permit application deadline is Tuesday, June 2, 2026, at 11:59 p.m. Arizona time.

Purchase Arizona hunting licenses and apply for the draw online at azgfd.gov.

Report wildlife violations, call: 1-800-352-0700

Two other annual hunt draw booklets are published for the spring big game hunts and elk and pronghorn hunts.

Big Game — Mountain Lion

For further information on mountain lions, their habitat, range, natural history, or where you can hunt them in Arizona, please visit www.azgfd.gov.

Distribution

LEGAL REQUIREMENTS	
License Required	Any valid hunting or combination license except a Short-term Combination Hunt and Fish License (See table on page 5 for Resident and Non-resident license fees).
Tag Required	A hunt nonpermit-tag must be obtained from a license dealer as prescribed in R12-4-114. To participate in the Pursuit-Only Season, you must possess a valid mountain lion pursuit-only permit or a valid, unused mountain lion nonpermit-tag.
Legal Methods of Take	**General Hunt:** Any firearm, pre-charged pneumatic weapon, crossbow, or bow and arrow as prescribed in R12-4-304. **Archery-Only Hunt:** Bow and arrow as prescribed in R12-4-304 and R12-4-318, or crossbow if you possess a crossbow permit as prescribed under R12-4-216. **Pursuit-Only Season:** A person may use dogs to pursue, but shall not kill or capture a mountain lion, pursuant to R12-4-318.
Bag Limit	One (1) mountain lion per calendar year.
Open Areas	Open Areas do not include areas within municipal parks, municipal preserves, county parks, county preserves, airports, golf courses, or posted water treatment facilities (except as specifically opened in this Commission Order) or areas closed to hunting under A.R.S. Sections 17-303 and 17-304 or Commission Rules R12-4-321, R12-4-801, R12-4-802 and R12-4-803.

To hunt mountain lion in Arizona, you need a valid hunting or combination license and a mountain lion tag. To hunt mountain lion in any season, you must obtain a hunt nonpermit-tag from a license dealer as prescribed in R12-4-114.

MOUNTAIN LION SPECIAL REGULATIONS:

- ***Hunters are responsible for determining if their desired hunt unit is still open before hunting by checking the status online at www.azgfd.gov/harvestreports.***
- ***MANDATORY REPORTING (R12-4-308):*** *All hunters must report their mountain lion harvest online at www.azgfd.gov/harvestreports or in person within 48 hours of taking a mountain lion. The report shall include the hunter's name, hunting license number, tag number, sex of the mountain lion taken, management unit where the mountain lion was taken, and telephone number at which the hunter can be reached to obtain additional information.*
- ***MANDATORY PHYSICAL INSPECTION (R12-4-308):*** *Within 10 days of taking a mountain lion, the hunter (or their designee) shall present the mountain lion's skull and hide with attached proof of sex, accessible and identifiable, to a designated Arizona Game and Fish Department employee for inspection. If the skull and hide are frozen, they should be defrosted prior to presenting for inspection as a premolar tooth and a teat measurement will be taken from the mountain lion. If the skull and hide are frozen, we will not be able to complete the check-out and you will be asked to reschedule. Successful hunters must contact the Department office, where they plan to bring their animal, by telephone to coordinate inspections.*
- *In accordance with R12-4-305(H), an individual may retain the carcass of a mountain lion taken under ARS 17-302 when the season is closed by attaching their mountain lion nonpermit-tag and following the harvest check in procedures.*

MOUNTAIN LION SPECIAL NOTE: *Hunters may encounter mountain lions wearing radio collars across the state. The collared mountain lions are part of several ongoing research projects. If you harvest a collared mountain lion, and it is OK to do so, please return the collar, as well as any other marking device, such as an ear tag, to a Department office or officer when doing the required physical check-in of the carcass parts.*

Big Game — Mountain Lion

Mountain Lion: Commission Order 10

GENERAL (DAYLIGHT SHOOTING HOURS) MOUNTAIN LION

Season Dates	Notes	Open Areas	Legal Wildlife
Aug 21, 2026 – May 31, 2027	(3,5,6,7,10,18,19,21,22,23,24,26, 27,29,30,32,43,44,86,120,122, 129,135)	Statewide (including Buenos Aires and Cabeza Prieta National Wildlife Refuges; excluding all other National Wildlife Refuges, Mohave County Park Lands, and Units 11M, 25M, 26M, 38M)	Any lion except spotted kittens or females accompanied by spotted kittens

ARCHERY-ONLY MOUNTAIN LION

Season Dates	Notes	Open Areas	Legal Wildlife
Aug 21, 2026 – May 31, 2027	(3,4,15,16,17,18,25,120,135)	11M, 25M, 26M and 38M (Special Restrictions Apply - See Note 18)	Any lion except spotted kittens or females accompanied by spotted kittens

PURSUIT-ONLY MOUNTAIN LION

Season Dates	Notes	Open Areas	Legal Wildlife
Aug 21, 2026 – May 31, 2027	(18,120,121,135)	Statewide (excluding all National Wildlife Refuges, Mohave County Park Lands, and Units 11M, 25M, 26M, 38M)	Pursuit of any lion except spotted kittens or females accompanied by spotted kittens

MOUNTAIN LION ANNUAL HARVEST LIMITS (SEE MAP ON PAGE 48)

Zone	Harvest Threshold Aug. 21, 2026 to May 31, 2027	Zone	Harvest Threshold Aug. 21, 2026 to May 31, 2027
A (Units 13A/13B)	12	I (Units 42/44A)	5
B (Units 12A/12B)	15	J (Units 21/22/23/24A/24B/25M/26M)	54
C (Units 15A/15B/15C/15D)	4	K (Units 1/27)	24
D (Units 7/9/10/11M)	20	L (Units 39/41/43A/43B/44B/45A/45B/45C)	3
E (Units 16A/16B/18A/18B)	14	L (Units 39/41/43A/43B/44B/45A/45B/45C) — Female Harvest Threshold	1
F (Units 17A/17B/19B/20A/20B/20C)	38	M (28/31/32/33/37A/37B/38M)	46
G1 (Units 4A/4B/5A/5B)	15	N (Units 40A/40B/46A/46B)	4
G2 (Units 6A/6B/8/19A)	16	N (Units 40A/40B/46A/46B) — Female Harvest Threshold	1
H (Units 2A/2B/2C/3A/3B/3C)	7	P (Units 29/30A/30B/34A/34B/35A/35B/ 36A/36B/36C)	61

NOTES ARE ON PAGES 65-74.

EXHIBIT C

2018 FINAL ARIZONA MOUNTAIN LION HUNT DATA

	Harvest			Hunter Harvest	Sex of Hunter Harvest		Month of Hunter Harvest			
Unit	Hunter	Depredation	Other	Using Dogs	Male	Female	Jan. to March	Apr. to June	July to Sept.	Oct. to Dec.
1	6	0	0	5	5	1	1	0	0	5
3A	1	0	0	1	0	1	0	0	0	1
3B	4	0	1	4	4	0	1	0	1	2
3C	5	0	0	3	2	3	3	0	0	2
4B	2	0	0	1	2	0	1	0	0	1
5A	5	0	0	4	2	3	4	0	0	1
5B	7	0	0	7	3	4	4	1	0	2
6A	5	0	0	4	3	2	4	1	0	0
6B	1	0	0	1	1	0	0	0	1	0
7	8	0	0	8	7	1	3	0	0	5
8	3	0	0	1	1	2	0	1	0	2
9	4	0	0	2	3	1	2	2	0	0
10	4	0	0	2	3	1	2	1	1	0
12	16	0	0	16	10	6	10	1	0	5
13A	1	0	0	1	1	0	1	0	0	0
13B	4	0	0	2	3	1	2	1	0	1
15A	1	0	0	1	1	0	0	0	0	1
15B	1	0	0	1	1	0	0	0	0	1
16A	4	0	0	4	1	3	3	1	0	0
16B	0	0	1	.	.	.	.	.	.	.
17A	4	0	0	2	0	4	3	0	0	1
17B	11	0	0	9	6	5	7	2	0	2
18A	5	0	1	0	1	4	1	1	1	2
18B	7	0	0	6	5	2	3	0	1	3
19A	4	0	0	1	2	2	2	0	1	1
19B	2	0	1	0	1	1	0	0	0	2
20A	4	0	0	2	1	3	0	1	0	3
20B	5	0	1	4	3	2	2	0	0	3
20C	1	0	0	1	0	1	0	0	0	1
21	7	0	0	5	4	3	4	1	1	1
22	12	0	1	8	6	6	3	1	3	5

2018 FINAL ARIZONA MOUNTAIN LION HUNT DATA

	Harvest			Hunter Harvest	Sex of Hunter Harvest		Month of Hunter Harvest			
Unit	Hunter	Depredation	Other	Using Dogs	Male	Female	Jan. to March	Apr. to June	July to Sept.	Oct. to Dec.
23	9	0	1	8	3	6	4	0	0	5
24A	12	0	1	12	4	8	5	1	0	6
24B	6	0	0	3	1	5	3	0	0	3
27	19	1	0	13	14	5	7	3	3	6
28	4	5	0	3	2	2	2	1	0	1
29	6	0	0	5	2	4	3	0	1	2
30A	5	0	0	5	5	0	1	2	1	1
30B	5	0	0	2	2	3	5	0	0	0
31	3	1	0	3	2	1	1	0	0	2
32	7	2	0	6	6	1	3	2	1	1
33	9	0	0	4	6	3	1	3	3	2
34A	6	0	0	3	3	3	1	1	0	4
34B	4	0	0	3	2	2	2	0	0	2
35B	3	0	0	2	0	3	2	0	0	1
36A	3	0	1	3	3	0	2	1	0	0
36B	13	0	0	5	5	8	3	1	1	8
36C	9	0	0	4	4	5	3	0	1	5
37A	0	0	1	.	.	.	.	.	.	.
37B	4	0	1	2	3	1	3	0	1	0
42	1	0	0	0	0	1	0	1	0	0
TOTAL	**272**	**9**	**11**	**192**	**149**	**123**	**117**	**31**	**22**	**102**
PERCENT	93	3	4	71	55	45	43	11	8	38

** Statewide harvest trends will be managed to keep adult (≥3 year old) female harvest <35% of the total take within the standard management zone. Should 2-year mean female harvest comprise >35% of the harvest for a group of units that biologically may be combined as a subzone, the season may be restricted during July – September and female harvest limits may be established to reduce the overall female harvest in that subzone.

2019 ARIZONA MOUNTAIN LION HARVEST

	Harvest			Hunter Harvest	Sex of Hunter Harvest			No. of Adult Females	Month of Hunter Harvest			
Unit	Hunter	Depredation	Other	Using Dogs	Male	Female	Unknown	≥ 3 years**	Jan. to March	Apr. to June	July to Sept.	Oct. to Dec.
1	7	0	0	3	2	5	0	3	3	0	0	4
02B	1	0	0	0	1	0	0	0	0	0	1	0
03A	1	0	0	1	1	0	0	0	1	0	0	0
03B	3	0	2	3	1	2	0	1	0	0	0	3
03C	3	0	0	3	3	0	0	0	1	0	0	2
04A	2	0	0	1	1	1	0	0	1	0	0	1
04B	3	0	0	3	3	0	0	0	2	0	0	1
05A	6	0	0	3	2	4	0	0	3	0	0	3
05B	6	0	0	4	5	1	0	1	1	0	3	2
06A	4	0	0	3	1	3	0	1	4	0	0	0
06B	1	0	0	1	1	0	0	0	1	0	0	0
7	2	0	0	2	1	1	0	1	1	0	0	1
8	7	0	0	4	5	2	0	1	4	0	2	1
9	6	0	0	6	4	2	0	0	5	0	0	1
10	14	0	0	12	8	6	0	1	9	0	2	3
12A	15	0	0	15	8	7	0	3	8	0	0	7
12B	1	0	0	1	0	1	0	0	0	0	0	1
13A	5	0	0	5	3	2	0	0	2	0	0	3
13B	8	0	0	8	5	3	0	1	5	0	0	3
15A	1	0	0	1	1	0	0	0	1	0	0	0
15B	2	1	1	2	1	1	0	0	1	1	0	0
15C	2	0	2	2	1	1	0	0	1	0	0	1
16A	3	0	1	3	0	2	1	2	1	0	0	2
17A	7	0	0	5	2	5	0	1	3	0	2	2
17B	13	0	0	12	6	7	0	3	7	0	0	6
18A	7	1	1	7	6	1	0	0	5	0	1	1
18B	2	0	0	1	2	0	0	0	1	0	0	1
19A	10	0	1	7	5	5	0	1	3	1	0	6
19B	2	0	0	0	0	2	0	1	0	0	0	2
20A	8	0	0	7	5	3	0	0	6	0	0	2
20B	5	0	0	5	3	2	0	1	2	1	0	2
20C	5	0	0	5	1	4	0	0	5	0	0	0
21	11	2	0	7	8	3	0	1	4	0	1	6
22	9	0	3	7	6	3	0	0	5	0	0	4
23	15	0	0	14	5	10	0	4	9	0	1	5
24A	15	0	2	11	8	7	0	2	6	0	2	7
24B	5	0	0	1	3	2	0	2	2	0	1	2
27	11	4	0	9	4	7	0	3	6	0	1	4
28	6	12	0	5	6	0	0	0	4	0	0	2

2019 ARIZONA MOUNTAIN LION HARVEST

	Harvest			Hunter Harvest	Sex of Hunter Harvest			No. of Adult Females	Month of Hunter Harvest			
Unit	Hunter	Depredation	Other	Using Dogs	Male	Female	Unknown	≥ 3 years**	Jan. to March	Apr. to June	July to Sept.	Oct. to Dec.
29	9	0	0	4	5	4	0	0	3	1	0	5
30A	7	0	1	6	6	1	0	0	2	0	2	3
30B	4	0	0	1	3	1	0	1	1	0	0	3
31	7	7	0	5	2	4	1	1	3	2	0	2
32	8	5	0	5	5	3	0	0	5	0	0	3
33	11	0	5	6	10	1	0	1	3	0	1	7
34A	1	0	1	0	1	0	0	0	0	0	1	0
34B	2	0	0	2	1	1	0	0	2	0	0	0
35A	2	0	0	2	1	1	0	0	0	1	0	1
35B	3	0	0	1	2	0	1	0	2	0	0	1
36A	10	0	0	6	5	5	0	1	1	0	1	8
36B	9	0	1	6	5	4	0	1	8	0	0	1
36C	8	0	0	5	6	2	0	2	6	0	0	2
37B	10	0	0	9	7	3	0	2	6	0	0	4
39	0	0	2	0	0	0	0	0	0	0	0	0
42	2	1	0	1	0	2	0	1	1	0	0	1
TOTAL	**327**	**33**	**23**	**248**	**187**	**137**	**3**	**44**	**166**	**7**	**22**	**132**
PERCENT				76	57	42	1	13	51	2	7	40

**Statewide harvest trends will be managed to keep adult (≥3 year old) female harvest <35% of the total take within the standard management zone. Should 2-year mean female harvest comprise >35% of the harvest for a group of units that biologically may be combined as a subzone, the season may be restricted during July - September and female harvest limits may be established to reduce the overall female harvest in that subzone.

2020 ARIZONA MOUNTAIN LION HARVEST

	Harvest			Hunter Harvest	Sex of Hunter Harvest			No. of Adult Females	Month of Hunter Harvest			
Unit	Hunter	Depredation	Other	Using Dogs	Male	Female	Unknown	≥ 3 years**	Jan. to March	Apr. to June	July to Sept.	Oct. to Dec.
1	13	0	0	12	8	5	0	-	7	0	1	5
2B	2	0	0	0	1	1	0	-	0	0	0	2
3A	0	1	0	0	0	0	0	-	0	0	0	0
3B	2	0	2	2	1	0	1	-	0	0	0	2
3C	2	0	1	1	2	0	0	-	1	0	0	1
4A	1	0	0	1	1	0	0	-	1	0	0	0
4B	7	0	0	5	3	3	1	-	3	0	1	3
5A	3	0	0	2	1	2	0	-	2	0	0	1
5B	2	0	0	2	1	1	0	-	1	0	0	1
6A	8	0	0	1	5	2	1	-	1	0	3	4
6B	1	0	0	1	1	0	0	-	0	0	0	1
7	1	0	0	1	1	0	0	-	0	0	0	1
8	7	0	0	4	5	2	0	-	2	0	2	3
9	1	0	0	1	1	0	0	-	1	0	0	0
10	5	0	0	3	4	1	0	-	3	0	0	2
11M	1	0	1	1	1	0	0	-	0	0	0	1
12A	11	0	0	10	8	3	0	-	4	0	1	6
13A	1	0	0	0	0	1	0	-	0	0	0	1
13B	2	0	0	1	1	1	0	-	2	0	0	0
15A	2	0	0	1	1	1	0	-	1	0	1	0
15B	1	0	0	1	0	0	1	-	0	1	0	0
16A	6	0	0	5	3	3	0	-	4	1	0	1
17A	6	0	0	6	5	1	0	-	4	0	0	2
17B	9	0	0	8	8	1	0	-	4	2	0	3
18A	7	2	0	5	4	3	0	-	2	3	0	2
18B	2	3	0	2	1	1	0	-	0	1	0	1
19A	5	0	0	2	3	2	0	-	3	0	1	1
19B	5	0	0	5	4	1	0	-	1	0	0	4
20A	5	1	1	4	2	3	0	-	2	1	0	2
20B	3	0	0	3	1	1	1	-	0	1	0	2
20C	4	0	0	3	3	1	0	-	3	0	1	0
21	5	0	0	1	2	2	1	-	2	0	1	2
22	14	0	3	7	9	5	0	-	7	0	3	4
23	14	0	1	11	9	5	0	-	5	0	2	7
24A	7	0	0	6	4	3	0	-	5	0	1	1
24B	5	0	0	1	1	4	0	-	0	0	0	5
27	11	2	0	5	7	4	0	-	2	1	3	5
28	10	11	0	8	3	7	0	-	3	1	1	5
29	8	1	0	5	3	5	0	-	4	1	0	3

2020 ARIZONA MOUNTAIN LION HARVEST

	Harvest			Hunter Harvest	Sex of Hunter Harvest			No. of Adult Females	Month of Hunter Harvest			
Unit	Hunter	Depredation	Other	Using Dogs	Male	Female	Unknown	≥ 3 years**	Jan. to March	Apr. to June	July to Sept.	Oct. to Dec.
30A	7	0	0	4	5	2	0	-	5	0	0	2
30B	4	0	0	2	1	3	0	-	3	0	0	1
31	7	8	0	3	2	5	0	-	3	1	0	3
32	8	6	0	3	6	2	0	-	3	0	1	4
33	14	0	0	5	4	10	0	-	5	1	0	8
34A	6	0	1	2	3	3	0	-	0	1	3	2
35A	2	0	0	1	2	0	0	-	1	0	0	1
35B	2	0	0	1	1	1	0	-	0	0	1	1
36A	2	0	0	1	1	1	0	-	1	0	0	1
36B	9	0	0	3	3	6	0	-	3	1	0	5
36C	9	0	0	5	3	6	0	-	5	0	1	3
37A	3	0	0	1	1	2	0	-	3	0	0	0
37B	7	1	0	4	6	1	0	-	6	0	0	1
38M	0	0	1	0	0	0	0	-	0	0	0	0
40A	2	0	0	0	1	1	0	-	1	0	0	1
40B	0	0	1	0	0	0	0	-	0	0	0	0
TOTAL	**281**	**36**	**12**	**172**	**157**	**118**	**6**	**-**	**119**	**17**	**28**	**117**
PERCENT				**61**	**56**	**42**	**2**	**-**	**42**	**6**	**10**	**42**

**Statewide harvest trends will be managed to keep adult (≥3 year old) female harvest <35% of the total take within the standard management zone. Should 2-year mean female harvest comprise >35% of the harvest for a group of units that biologically may be combined as a subzone, the season may be restricted during July - September and female harvest limits may be established to reduce the overall female harvest in that subzone.

2021 ARIZONA MOUNTAIN LION HARVEST

TAG SALES = 11,851

	Harvest			Hunter Harvest	Sex of Hunter Harvest			[1, 2]No. of Adult	Month of Hunter Harvest			
Unit	Hunter	Depredation	Other	Using Dogs	Male	Female	Unknown	Females ≥ 3 years	Jan. to March	Apr. to June	July to Sept.	Oct. to Dec.
1	11	0	0	8	5	6	0	2	6	1	2	2
3B	1	0	0	1	1	0	0	-	1	0	0	0
3C	4	0	1	3	4	0	0	-	1	0	1	2
4A	4	0	0	4	3	1	0	-	2	0	0	2
4B	4	0	0	4	4	0	0	-	4	0	0	0
5A	4	0	1	1	4	0	0	-	1	0	0	3
5B	8	0	1	7	7	1	0	1	3	0	2	3
6A	2	0	0	1	1	1	0	-	0	0	1	1
6B	1	0	0	1	0	1	0	1	1	0	0	0
7	6	0	0	6	4	2	0	-	4	0	0	2
8	4	0	2	1	2	2	0	1	0	0	0	4
9	4	0	0	3	1	3	0	1	3	0	1	0
10	13	0	0	8	6	7	0	1	7	1	0	5
11M	1	0	0	0	0	1	0	-	0	0	0	1
12A	7	0	1	6	3	4	0	2	6	0	1	0
12B	1	0	0	1	1	0	0	-	0	0	0	1
13A	1	0	0	1	0	1	0	1	1	0	0	0
13B	2	0	0	1	2	0	0	-	1	0	0	1
15B	1	0	0	1	1	0	0	-	1	0	0	0
16A	1	0	1	1	1	0	0	0	1	0	0	0
16B	0	0	1	0	0	0	0	-	0	0	0	0
17A	2	0	0	2	2	0	0	-	2	0	0	0
17B	13	1	0	11	10	3	0	1	6	2	0	5
18A	8	1	1	8	4	4	0	2	3	0	0	5
18B	11	1	0	9	8	3	0	1	6	0	2	3
19A	5	1	0	1	3	2	0	1	1	0	0	4
19B	0	0	1	0	0	0	0	-	0	0	0	0
20A	11	0	1	10	5	6	0	3	8	1	0	2
20B	4	0	0	4	2	2	0	2	1	0	0	3
20C	4	0	1	4	4	0	0	-	2	0	0	2
21	6	0	0	2	2	3	1	1	4	0	0	2
22	16	0	0	10	8	8	0	4	8	0	1	7
23	16	0	0	11	9	6	1	1	8	0	2	6
24A	6	0	0	4	4	2	0	2	3	0	0	3
24B	3	0	0	2	0	3	0	1	1	0	0	2
27	10	1	0	8	7	3	0	2	6	1	2	1
28	3	6	0	3	2	1	0	-	3	0	0	0

2021 ARIZONA MOUNTAIN LION HARVEST

TAG SALES = 11,851

	Harvest			Hunter Harvest	Sex of Hunter Harvest			[1, 2]No. of Adult	Month of Hunter Harvest			
Unit	Hunter	Depredation	Other	Using Dogs	Male	Female	Unknown	Females ≥ 3 years	Jan. to March	Apr. to June	July to Sept.	Oct. to Dec.
29	2	0	0	0	0	2	0	1	0	0	0	2
30A	4	0	0	2	3	1	0	1	0	0	1	3
30B	3	0	1	2	1	2	0	2	1	1	0	1
31	3	3	0	2	2	1	0	-	2	0	0	1
32	4	3	0	2	2	1	1	-	0	0	0	4
33	3	0	0	1	1	2	0	2	1	0	0	2
34A	6	0	0	1	2	4	0	-	0	0	1	5
34B	1	0	0	0	0	1	0	-	0	0	0	1
35A	3	0	0	0	2	1	0	-	0	0	0	3
35B	2	0	0	1	0	1	1	-	0	0	1	1
36A	9	0	0	6	6	3	0	-	2	3	0	4
36B	7	0	0	5	4	3	0	2	3	1	0	3
36C	9	0	0	8	5	3	1	2	6	0	0	3
37A	3	0	0	0	0	3	0	1	2	0	0	1
37B	1	0	0	1	1	0	0	-	1	0	0	0
40A	1	0	0	0	0	1	0	-	1	0	0	0
44A	1	0	0	1	1	0	0	-	1	0	0	0
TOTAL	**260**	**17**	**13**	**180**	**150**	**105**	**5**	**42**	**125**	**11**	**18**	**106**
PERCENT				**69**	**58**	**40**	**2**	**16**	**48**	**4**	**7**	**41**

[1]Statewide harvest trends will be managed to keep adult (≥3 year old) female harvest <25% of the total take. Should the 3-year mean adult (≥3 year old) female harvest comprise >25% for the management zone, the harvest threshold shall be reduced or the length of the season shall be shortened for that management zone.

[2]Age is determined using cementum analysis. The final summary report will be updated continuously as results are received.

2022 MOUNTAIN LION HARVEST

	Harvest				Sex of Harvest				Month of Harvest			
Zone	Hunter	Other[1]	Using Dogs	Depredation	Males	Females	Unknown	Number of Adult Females[2,3]	January to March	April to May	August to September	October to December
A	4	0	3	1	3	1	0	0	1	0	0	3
B	10	0	10	0	7	2	1	0	4	0	0	6
C	1	0	1	1	1	0	0	0	1	0	0	0
D	15	1	10	3	8	7	0	1	11	1	1	2
E	17	0	16	3	12	5	0	1	5	1	2	9
F	40	4	33	6	23	15	2	4	20	2	3	15
G1	23	0	19	2	11	11	1	0	10	0	0	13
G2	25	4	12	4	16	7	2	0	3	1	4	17
H	7	2	3	4	5	2	0	1	2	1	0	4
I	1	0	0	2	1	0	0	0	0	0	0	1
J	51	0	35	6	34	16	1	1	16	2	3	30
K	22	0	18	2	17	4	1	0	6	1	1	14
L	1	0	0	1	1	0	0	0	1	0	0	0
M	32	0	23	5	25	7	0	1	14	1	3	14
N	1	0	0	0	0	1	0	0	0	0	1	0
P	47	2	21	10	29	18	0	5	19	0	3	25
Total	**297**	**13**	**204**	**50**	**193**	**96**	**8**	**14**	**113**	**10**	**21**	**153**
Percent			**69**		**65**	**32**	**3**	**5**	**38**	**3**	**7**	**52**
Tag Sales	**10,054**											

[1]Other forms of harvest include (roadkill, illegal harvest, nuisance, etc.)

[2]An adult female mountain lion is ≥3 years old, or younger females showing signs of lactation.

[3]Age is calculated using cementum age data. Not all age data is represented in this report as of June 15, 2023. The final summary report will be updated once all mountain lion teeth collected for 2022 have been analyzed by the lab.

2023 MOUNTAIN LION HARVEST

	Harvest				Sex of Harvest				Month of Harvest			
Zone	Hunter	Other[1]	Using Dogs	Depredation	Males	Females	Unknown	Number of Adult Females[2]	January to March	April to May	August to September	October to December
A	0	1	0	0	0	0	0	0	0	0	0	0
B	11	0	8	0	9	2	0	0	7	0	3	1
C	2	0	2	0	1	1	0	0	2	0	0	0
D	18	0	15	0	14	4	0	2	13	3	0	2
E	19	0	12	1	11	8	0	1	8	0	2	9
F	39	4	32	2	21	16	2	9	24	1	2	12
G1	10	0	5	0	8	2	0	0	6	0	1	3
G2	12	1	6	0	6	6	0	0	0	0	2	10
H	5	0	5	0	4	1	0	0	3	0	1	1
I	0	0	0	0	0	0	0	0	0	0	0	0
J	49	1	32	0	33	16	0	6	21	0	4	24
K	24	0	17	1	17	7	0	1	9	0	2	13
L	1	0	0	0	0	1	0	0	0	0	0	1
M	36	1	21	13	19	16	1	7	14	6	4	12
N	1	0	0	0	1	0	0	0	0	0	0	1
P	59	0	37	0	24	35	0	17	29	3	2	25
Total	**286**	**8**	**192**	**17**	**168**	**115**	**3**	**43**	**136**	**13**	**23**	**114**
Percent			**67**		**59**	**40**	**1**	**15**	**48**	**5**	**8**	**40**
Tag Sales	**10,054**											

[1]Other forms of harvest include (roadkill, illegal harvest, nuisance, etc.)

[2]An adult female mountain lion is ≥3 years old, or younger females showing signs of lactation.

2024 Mountain Lion Harvest Summary

Report generated on 6/10/2025

	Type of Harvest			Sex of Harvest			Period of Harvest			
Zone	**Hunter** *(# using dogs in parens)*[1]	**Other**[2]	**Depredation**	**Males**	**Females**	**Unknown**	**Jan to Mar**	**Apr to May**	**Aug to Sep**	**Oct to Dec**
A	2 (2)	-	-	2	-	-	2	-	-	-
B	13 (11)	-	-	5	8	-	9	1	2	1
C	0 (0)	1	-	-	-	-	-	-	-	-
D	15 (13)	1	-	10	5	-	9	1	2	3
E	18 (17)	-	-	7	9	2	7	1	3	7
F	30 (25)	2	1	14	16	-	18	-	2	10
G1	21 (15)	-	-	12	8	1	13	-	2	6
G2	14 (9)	-	2	7	6	1	2	-	4	8
H	8 (7)	1	-	6	2	-	6	-	-	2
I	1 (0)	-	-	1	-	-	-	-	-	1
J	52 (32)	4	2	27	25	-	32	1	3	15
K	20 (19)	-	-	15	5	-	12	-	-	8
L	0 (0)	-	-	-	-	-	-	-	-	-
M	43 (28)	-	18	27	15	1	23	4	1	15
N	0 (0)	-	-	-	-	-	-	-	-	-
P	63 (34)	1	4	38	24	1	30	1	3	29
Total	**300 (212)**	**10**	**27**	**171**	**123**	**6**	**163**	**9**	**22**	**105**
Percent	(71%)			57%	41%	2%	54%	3%	7%	35%

Tags Sold 11449

[1] The number in parentheses is the number harvests that used dogs for hunting.

[2] Other forms of harvest include (roadkill, illegal harvest, nuisance, etc.)

EXHIBIT D

2018 Mountain Lion Tooth Age Results

LAST NAME		UNIT OF HARVEST	HARVEST DATE	TOOTH AGE
[redacted]		16AN	2/20/2018	2
		15A	12/28/2018	3
		20A	10/26/2018	2
		36A	1/24/2018	4
		3B	8/30/2018	2
		24B	1/21/2018	4
		24A	2/24/2018	4
		24A	12/8/2018	1
		18BS	3/4/2018	3
		5A	10/8/2018	4
		6B	8/24/2018	4
		36B	12/11/2018	8
		36B	12/1/2018	1
		17A	2/24/2018	3
		12AE	12/6/2018	4
		12AE	12/7/2018	6
		27	12/5/2018	2
		21	1/13/2018	1
		1	12/4/2018	1
		17B	3/6/2018	4
		12B	10/18/2018	1
		8	12/14/2018	1
		22	12/16/2018	3
		23	2/24/2018	2
		1	12/29/2018	2
		12	2/25/2018	2
		22	11/10/2018	7
		05BN	1/3/2018	3
		24B	12/17/2018	2
		4B	12/26/2018	2
		06A	3/31/2018	5
		35B	1/13/2018	3
		32	3/12/2018	6
		18B	2/17/2018	2
		35B	3/3/2018	10
		29	3/28/2018	3
		34A	11/2/2018	2
		33	4/10/2018	2
		12A	1/21/2018	4
		22	11/21/2018	4
		17B	4/22/2018	3
		28	4/17/2018	4
		16A	4/5/2018	TOOTH SAMPLE NOT VIABLE
		30B	3/23/2018	1
		24A	12/31/2017	2

LAST NAME	UNIT OF HARVEST	HARVEST DATE	TOOTH AGE
[redacted]	12AW	2/13/2018	5
	7W	12/3/2018	4
	17B	1/30/2018	3
	32	11/11/2018	3
	36C	12/4/2018	2
	27	9/23/2018	1
	24A	3/25/2018	3
	22	9/21/2018	1
	37B	9/23/2018	2
	30B	1/3/2018	2
	27	12/19/2017	4
	10	2/24/2018	1
	19A	10/20/2018	2
	35B	10/27/2018	1
	27U	2/22/2018	TOOTH SAMPLE NOT VIABLE
	05BN	2/10/2018	3
	37B	1/31/2018	5
	18A	12/29/2018	0
	13A	2/14/2018	3
	06A	3/12/2018	1
	36B	12/21/2018	1
	19A	9/29/2018	2
	36C	12/4/2018	3
	31	8/31/2017	4
	27	6/6/2018	3
	27	6/17/2018	2
	27	6/17/2018	1
	22	9/19/2018	2
	29	1/22/2018	1
	34B	12/7/2018	1
	12A	6/3/2018	2
	32	6/30/2018	2
	03B	1/22/2018	3
	1	12/1/2018	3
	19A	3/22/2018	2
	18A	7/31/2018	1
	36B	5/16/2018	3
	20B	11/22/2018	4
	36A	2/11/2018	3
	27	11/11/2018	1
	03C	3/10/2018	5
	34A	11/23/2018	2
	30A	5/1/2018	TOOTH SAMPLE NOT VIABLE
	7	12/3/2018	4
	24B	1/28/2018	3

LAST NAME		UNIT OF HARVEST	HARVEST DATE	TOOTH AGE
[redacted]		18B	11/12/2018	1
		33	4/8/2018	TOOTH SAMPLE NOT VIABLE
		17B	1/15/2018	5
		23	12/30/2018	2
		12AE	12/22/2017	3
		36B	12/28/2018	2
		07	1/21/2018	4
		17B	2/9/2018	3
		24A	12/20/2018	2
		24A	3/3/2018	7
		03C	1/22/2018	4
		12AE	1/23/2018	1
		12AE	1/27/2018	5
		17A	12/4/2018	1
		9	5/13/2018	2
		31	12/4/2018	TOOTH SAMPLE NOT VIABLE
		34B	10/26/2018	3
		3B	12/28/2018	2
		3A	12/29/2018	0
		27	3/1/2018	2
		36A	6/23/2018	2
		36C	1/27/2018	3
		34A	12/8/2018	4
		1	10/12/2018	2
		18A	1/31/2018	TOOTH SAMPLE NOT VIABLE
		13B	2/6/2018	2
		13B	3/17/2018	3
		29	2/25/2018	2
		12B	10/18/2018	3
		22	3/3/2018	2
		12B	1/13/2018	5
		33	10/8/2018	4
		28	10/21/2018	1
		30A	11/9/2018	3
		23	12/11/2018	3
		12AW	2/13/2018	5
		36C	8/24/2018	2
		23N	10/8/2018	3
		29	11/19/2018	2
		30B	2/14/2018	3
		5B	4/2/2018	1
		17B	11/24/2018	2
		34A	6/2/2018	3
		18B	8/23/2018	2
		36C	2/18/2018	6

LAST NAME		UNIT OF HARVEST	HARVEST DATE	TOOTH AGE
[redacted]		27	11/16/2018	1
		17B	2/17/2018	2
		05A	1/28/2018	0
		21	3/25/2018	2
		05A	1/24/2018	2
		24A	1/13/2018	1
		15B	12/23/2018	TOOTH SAMPLE NOT VIABLE
		05A	1/27/2018	0
		20A	4/14/2018	3
		36B	12/10/2018	1
		24A	11/14/2018	5
		06A	3/5/2018	2
		18A	12/29/2018	1
		36C	11/30/2018	1
		27U	2/20/2018	3
		27	12/3/2018	1
		12B	12/5/2018	4
		42	5/12/2018	6
		34B	1/6/2018	TOOTH SAMPLE NOT VIABLE
		30A	4/20/2018	3
		27	12/27/2018	4
		28	2/13/2018	4
		1	10/17/2018	12
		33	5/5/2018	3
		05BN	2/14/2018	3
		24A	1/16/2018	TOOTH SAMPLE NOT VIABLE
		24B	12/21/2018	2
		30B	2/7/2018	1
		20A	12/21/2018	2
		24B	12/28/2017	TOOTH SAMPLE NOT VIABLE
		22	12/23/2018	3
		31	1/15/2018	2
		22	4/13/2018	2
		12A	1/21/2018	4
		10	1/30/2018	1
		20B	10/30/2018	1
		20C	12/4/2018	2
		5B	12/9/2018	3
		06A	3/15/2018	3
		21	11/10/2018	1
		21	1/10/2018	3
		21	6/13/2018	TOOTH SAMPLE NOT VIABLE
		36B	1/10/2018	7
		29	9/7/2018	3
		5B	11/2/2018	2

LAST NAME		UNIT OF HARVEST	HARVEST DATE	TOOTH AGE
[redacted]		07	1/27/2018	2
		05B	3/19/2018	1
		27	8/27/2018	3
		28	3/2/2018	2
		36C	3/17/2018	2
		33	9/2/2018	2
		24A	12/19/2018	2
		36C	11/30/2018	1
		30B	2/21/2018	2
		21	8/24/2018	1
		31	12/16/2017	1
		27	1/23/2018	2
		23	3/1/2018	0
		16A	3/21/2018	3
		20A	10/21/2018	2
		34B	3/31/2018	2
		17B	6/7/2018	4
		30A	9/26/2018	1
		17A	1/16/2018	1
		27	10/30/2018	1
		22	1/27/2018	3
		8	10/21/2018	2
		36B	1/18/2018	1
		33	2/11/2018	1
		18B	10/6/2018	3
		36B	2/26/2018	1
		05A	2/20/2018	4
		09	1/21/2018	3
		24A	11/3/2018	2
		22	11/11/2018	1
		22	2/2/2018	3
		23	11/15/2018	1
		7	12/29/2018	1
		23	10/5/2018	2
		20C	12/31/2017	1
		3C	12/28/2018	2
		24B	2/12/2018	1
		32	1/31/2018	2
		34A	1/12/2018	6
		06A	4/25/2018	4
		32	12/10/2017	2
		24A	4/3/2018	1
		10	4/16/2018	5
		18A	9/14/2018	3
		20B	10/21/2018	1

LAST NAME		UNIT OF HARVEST	HARVEST DATE	TOOTH AGE
[redacted]		7	10/9/2018	2
		16AN	1/31/2018	0
		09	1/21/2018	3
		34A	10/24/2018	5
		20B	1/21/2018	3
		24A	11/10/2018	4
		32	3/8/2018	1
		31	12/20/2018	2
		27	2/17/2018	1
		27	9/11/2018	1
		30A	2/21/2018	2
		37B	2/16/2018	3
		18B	2/28/2018	2
		18A	6/20/2018	3
		19B	10/30/2018	1
		19B	10/30/2018	2
		07W	2/25/2018	3
		09	4/17/2018	4
		17B	3/8/2018	4
		17B	2/16/2018	2
		33	8/25/2018	4
		03C	1/22/2018	2
		20B	1/17/2018	2
		10	9/24/2018	2
		24B	11/9/2018	3
		34A	10/3/2018	4
		12AW	2/24/2018	1
		8	6/18/2018	TOOTH SAMPLE NOT VIABLE
		17B	10/30/2018	TOOTH SAMPLE NOT VIABLE
		27	1/24/2018	2
		32	9/20/2018	3
		12A	1/13/2018	4
		21	1/28/2018	2
		19A	2/28/2018	1
		04B	1/23/2018	2
		36B	12/5/2018	1
		37B	1/11/2018	1
		3B	12/26/2018	1
		23	2/2/2018	5
		7E	11/28/2018	3
		18B	10/19/2018	4
		13B	12/26/2018	3
		17A	1/21/2018	1
		23	3/14/2018	3
		29	12/20/2018	3

LAST NAME	UNIT OF HARVEST	HARVEST DATE	TOOTH AGE
[redacted]	36B	11/10/2018	1
[redacted]	13B	5/8/2018	2
[redacted]	32	4/14/2018	3

2019 Arizona Mountain Lion Harvest - Tooth Age Results

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	5B	11/12/2019	3
	36B	1/11/2019	2
	10	2/19/2019	5
	3B	12/27/2019	3
	6B	2/23/2019	5
	35B	1/8/2019	3
	36A	11/23/2019	4
	28	2/19/2019	4
	24B	1/19/2019	3
	13B	12/13/2019	5
	10	9/11/2019	2
	19A	3/10/2019	0
	1	1/3/2019	4
	10	2/11/2019	1
	10	1/2/2019	1
	35A	12/28/2019	2
	15B	5/26/2019	6
	1	10/29/2019	3
	10	1/4/2019	>2
	21	12/19/2019	0
	30A	10/2/2019	3
	36A	10/17/2019	2
	36A	11/26/2019	1
	28	11/5/2019	3
	12B	12/23/2019	2
	35A	4/17/2019	1
	30A	10/20/2019	3
	28	11/10/2019	1
	36B	3/4/2019	2
	3B	12/30/2019	3
	33	10/4/2019	3
	24B	9/28/2019	5
	21	1/1/2019	1
	21	10/27/2019	1
	27	2/24/2019	3
	29	2/28/2019	4
	17B	11/30/2019	1
	12AW	1/18/2019	2
	10	2/7/2019	2
	19B	11/22/2019	7
	10	10/29/2019	3
	37B	12/31/2019	2
	16A	10/31/2019	5
	28	3/2/2019	>2
	17B	12/19/2019	4
	19A	12/22/2019	3

2019 Arizona Mountain Lion Harvest - Tooth Age Results

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	1	2/19/2019	5
	24A	12/7/2019	2
	18A	2/23/2019	6
	20B	4/1/2019	4
	17B	2/23/2019	3
	36C	3/24/2019	4
	17B	2/19/2019	7
	19B	11/23/2019	unable to age
	22	10/31/2019	1
	2B	9/27/2019	1
	35B	12/29/2019	3
	34B	1/1/2019	1
	32	10/14/2019	2
	12	2/7/2019	4
	21	10/25/2019	1
	33	12/29/2019	4
	23	12/1/2019	3
	22	2/10/2019	unable to age
	23S	12/18/2019	1
	20C	3/25/2019	2
	15A	2/22/2019	2
	13B	11/30/2019	3
	36C	10/25/2019	4
	29	2/24/2019	6
	24A	1/21/2019	6
	34A	9/8/2019	1
	22	2/18/2019	1
	36B	1/20/2019	4
	10	1/7/2019	9
	17B	2/23/2019	3
	37B	12/3/2019	4
	36A	9/8/2019	1
	18A	1/19/2019	1
	36B	1/19/2019	3
	6A	2/19/2019	0
	12AE	12/21/2019	3
	36C	12/20/2018	6
	6A	1/6/2019	unable to age
	33	12/7/2019	1
	17A	2/18/2019	1
	24A	2/7/2019	4
	30B	1/18/2019	3
	13B	2/22/2019	2
	13B	2/22/2019	3
	4B	1/5/2019	2

2019 Arizona Mountain Lion Harvest - Tooth Age Results

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	17A	8/24/2019	5
	19A	1/3/2019	1
	32	11/15/2019	1
	32	3/4/2019	unable to age
	12AW	1/13/2019	4
	24A	10/23/2019	3
	23	9/3/2019	2
	27	2/9/2019	2
	12AE	1/6/2019	3
	12A	10/22/2019	3
	31	11/24/2019	1
	24A	12/15/2019	1
	1	10/26/2019	3
	33	8/27/2019	1
	1	2/18/2019	3
	33	10/17/2019	4
	22	1/12/2019	4
	12AE	12/29/2019	2
	24A	12/3/2019	1
	12A	2/8/2019	6
	03B	12/29/2019	2
	13A	2/23/2019	7
	7E	2/7/2019	>2
	13B	11/30/2019	0
	23S	1/19/2019	2
	5A	10/6/2019	2
	3C	12/27/2019	2
	20A	1/27/2019	2
	36A	11/3/2019	2
	17A	11/23/2019	1
	20A	2/19/2019	2
	13A	10/27/2019	1
	17B	12/1/2019	1
	36C	2/9/2019	3
	30B	12/29/2019	5
	7	11/22/2019	6
	16A	2/22/2019	3
	18A	2/22/2019	4
	18A	9/17/2019	2
	10	2/13/2019	5
	22N	1/20/2019	3
	13B	2/25/2019	4
	18A	2/24/2019	4
	15B	2/11/2019	3
	15B	2/11/2019	1

2019 Arizona Mountain Lion Harvest - Tooth Age Results

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	1	11/18/2019	1
	8	12/26/2019	4
	13B	2/23/2019	1
	22	6/25/2019	1
	36B	1/5/2019	3
	5B	9/18/2019	3
	20B	12/20/2019	5
	05A	11/22/2019	2
	19A	4/9/2019	2
	27	2/27/2019	4
	32	1/5/2019	3
	29	3/14/2019	3
	9	1/16/2019	2
	36C	1/5/2019	4
	21	2/18/2019	1
	10	12/28/2019	1
	27	8/30/2019	2
	37B	3/15/2019	4
	08	1/1/2019	5
	5B	9/6/2019	3
	10	12/28/2019	3
	27	11/30/2019	6
	23	2/6/2019	1
	24B	12/2/2019	5
	22	2/28/2019	1
	17B	11/29/2019	3
	33	10/21/2019	3
	36B	2/2/2019	1
	33	12/31/2019	3
	1	11/17/2019	>1
	36C	3/30/2019	7
	24A	9/22/2019	2
	20A	12/27/2019	unable to age
	27	1/26/2019	2
	9	1/2/2019	2
	17A	9/3/2019	1
	36C	12/30/2019	6
	24B	2/19/2019	1
	36A	10/6/2019	3
	28	1/17/2019	4
	32	11/29/2019	2
	33	3/10/2019	4
	13B	2/24/2019	4
	23	1/1/2019	2
	23	1/1/2019	4

2019 Arizona Mountain Lion Harvest - Tooth Age Results

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	36B	2/2/2019	0
	29	10/8/2019	2
	21	8/31/2019	9
	17B	2/7/2019	1
	27	1/31/2019	3
	20A	2/23/2019	6
	5B	11/15/2019	3
	20B	2/8/2019	2
	5A	2/1/2019	2
	4B	1/1/2019	5
	22	12/20/2019	4
	4B	11/23/2019	4
	37B	3/15/2019	5
	37B	1/20/2019	unable to age
	37B	12/22/2019	2
	32	2/23/2019	4
	33	2/17/2019	3
	22	12/10/2019	8
	23	11/25/2019	1
	3C	1/3/2019	4
	3A	1/1/2019	2
	36B	2/24/2019	5
	21	2/18/2019	5
	23	1/2/2019	2
	18A	12/1/2019	0
	36B	12/15/2019	1
	9	2/12/2019	1
	29	4/12/2019	4
	18B	12/28/2019	2
	20A	1/28/2019	3
	9	1/4/2019	2
	9	1/1/2019	2
	31	3/27/2019	1
	20C	1/1/2019	1
	24A	1/14/2019	2
	23	12/26/2019	3
	5B	1/4/2019	2
	20C	1/16/2019	>1
	24A	2/19/2019	4
	30B	12/7/2019	6
	21	2/19/2019	5
	36A	10/16/2019	2
	13A	12/27/2019	5
	19A	12/13/2019	2
	29	11/30/2019	1

2019 Arizona Mountain Lion Harvest - Tooth Age Results

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	29	11/30/2019	2
	29	12/8/2019	3
	23	1/4/2019	2
	4A	11/15/2019	1
	37B	12/14/2019	3
	12AE	2/23/2019	3
	9	12/29/2019	3
	17A	2/19/2019	2
	42	2/25/2019	3
	27	12/28/2019	6
	27	10/8/2019	1
	18B	1/10/2019	4
	12A	2/8/2019	2
	23	2/6/2019	3
	19A	11/30/2019	1
	36A	11/23/2019	0
	19A	2/19/2019	2
	6A	3/10/2019	3
	15C	2/23/2019	2
	4A	1/2/2019	1
	23	10/27/2019	3
	16A	10/17/2019	3
	21	12/7/2019	6
	36C	2/28/2019	8
	12A	11/21/2019	3
	27	1/3/2019	6
	24A	1/12/2019	7
	8	9/26/2019	2
	33	1/11/2019	4
	30A	1/19/2019	1
	8	8/31/2019	1
	20C	3/8/2019	unable to age
	31	1/14/2019	2
	31	2/13/2019	4
	20B	1/1/2019	2
	05A	11/23/2019	2
	05A	1/2/2019	4
	17A	1/6/2019	3
	19A	10/12/2019	1
	30A	9/7/2019	2
	17B	12/7/2019	1
	42	11/23/2019	2
	8	2/23/2019	>2
	21	10/30/2019	1
	23	2/20/2019	1

2019 Arizona Mountain Lion Harvest - Tooth Age Results

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	24A	11/11/2019	2
	20A	1/1/2019	4
	17B	2/13/2019	1
	15C	12/27/2019	3
	17B	3/22/2019	8
	17B	1/1/2019	2
	30A	10/27/2019	1
	21	11/25/2019	7
	37B	2/12/2019	2
	20A	2/11/2019	1
	30B	12/2/2019	1
	32	3/11/2019	3
	34B	3/28/2019	2
	20C	2/16/2019	1
	33	10/19/2019	1
	24A	1/31/2019	0
	17B	12/12/2019	1
	33	10/5/2019	3
	10	9/26/2019	2
	13A	1/8/2019	2
	10	2/19/2019	1
	37B	1/12/2019	5
	17A	12/29/2019	3
	12A	12/16/2019	4
	12AE	2/12/2019	1
	3C	12/1/2019	1
	36A	1/12/2019	3
	8	2/8/2019	3
	32	1/2/2019	3
	20B	10/19/2019	4
	6A	3/2/2019	>2
	28	1/11/2019	2

2020 Arizona Mountain Lion Harvest - Tooth Age Results

*Teeth were submitted in multiple batches for aging. Results will be posted as they are received.

UPDATED: NOVEMBER 16, 2021

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	18A	4/30/2020	2
	12AE	1/8/2020	2
	30A	2/16/2020	4
	24B	12/19/2020	2
	17B	4/7/2020	UNABLE TO AGE
	24B	11/13/2020	3
	33	12/6/2020	<1
	19A	1/8/2020	1
	3C	11/15/2020	2
	3B	12/8/2020	1
	12B	7/4/2020	2
	20B	4/3/2020	2
	17B	12/30/2020	2
	12A	12/5/2020	1
	21	1/15/2020	UNABLE TO AGE
	22	1/23/2020	5
	10	1/10/2020	2
	16A	3/22/2020	4
	1	10/28/2020	2
	27	10/18/2020	4
	35A	3/18/2020	2
	36C	2/22/2020	2
	28	10/27/2020	2
	27	3/7/2020	2
	21	1/26/2020	1
	30B	1/28/2020	9
	40A	11/8/2020	2
	28	8/21/2020	2
	23	2/16/2020	3
	27	10/28/2020	2
	1	12/12/2020	2
	4B	11/9/2020	1
	1	12/31/2020	2
	36B	11/27/2020	4
	1	2/11/2020	4
	18B	5/2/2020	5
	20B	12/13/2020	1
	29	2/19/2020	4
	33	12/5/2020	3
	27	11/7/2020	5
	23	12/14/2020	5
	29	3/20/2020	5

2020 Arizona Mountain Lion Harvest - Tooth Age Results

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UPDATED: NOVEMBER 16, 2021

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	32	3/11/2020	3
	32	11/28/2020	1
	16A	2/19/2020	1
	20A	10/26/2020	5
	20A	3/3/2020	2
	34A	11/17/2020	1
	12A	12/29/2020	4
	27	4/23/2020	2
	36C	3/21/2020	3
	37B	1/19/2020	1
	24A	2/6/2020	2
	27	8/22/2020	1
	20C	2/7/2020	3
	29	4/14/2020	2
	1	10/28/2020	2
	27	12/11/2020	4
	17A	1/19/2020	UNABLE TO AGE
	22	9/5/2020	UNABLE TO AGE
	28	10/19/2020	2
	13B	3/22/2020	2
	17A	1/26/2020	2
	22	12/23/2020	1
	17B	12/21/2020	UNABLE TO AGE
	22	2/8/2020	6
	30A	10/28/2020	<1
	19B	10/26/2020	6
	29	11/6/2020	3
	8	9/3/2020	2
	23	12/17/2020	3
	34A	11/8/2020	1
	36C	1/22/2020	2
	23	10/13/2020	2
	22	2/27/2020	4
	9	1/4/2020	2
	33	2/17/2020	5
	23	2/14/2020	4
	13B	1/22/2020	1
	17B	3/21/2020	2
	19A	8/23/2020	2
	18A	1/18/2020	1
	35A	12/5/2020	4
	1	1/5/2020	1

2020 Arizona Mountain Lion Harvest - Tooth Age Results

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UPDATED: NOVEMBER 16, 2021

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	36B	1/30/2020	2
	37A	1/17/2020	4
	32	11/29/2020	1
	36B	12/15/2020	2
	27	4/25/2020	4
	17B	3/19/2020	1
	37B	11/13/2020	2
	28	10/12/2020	2
	19A	2/11/2020	2
	40A	1/17/2020	3
	28	2/24/2020	2
	17B	1/24/2020	3
	6A	2/25/2020	UNABLE TO AGE
	19B	10/28/2020	1
	13A	11/8/2020	2
	34A	6/10/2020	2
	12A	1/5/2020	1
	15A	1/27/2020	1
	15A	8/22/2020	1
	19B	10/29/2020	1
	23	2/19/2020	4
	30A	3/10/2020	2
	30A	1/19/2020	3
	37B	1/29/2020	3
	23	11/7/2020	2
	37B	3/24/2020	2
	27	4/6/2020	3
	35B	11/10/2020	2
	36C	2/15/2020	2
	1	3/28/2020	2
	37A	1/11/2020	1
	4B	8/29/2020	1
	21	1/15/2020	1
	23	3/4/2020	1
	30A	12/19/2020	3
	4B	3/6/2020	UNABLE TO AGE
	12A	12/30/2020	4
	4B	11/10/2020	3
	31	1/4/2020	2
	33	11/22/2020	4
	18A	11/9/2020	1
	18A	4/3/2020	2

2020 Arizona Mountain Lion Harvest - Tooth Age Results

*Teeth were submitted in multiple batches for aging. Results will be posted as they are received.

UPDATED: NOVEMBER 16, 2021

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	33	3/9/2020	2
	36B	11/28/2020	UNABLE TO AGE
	4B	8/20/2020	2
	31	1/26/2020	1
	8	1/9/2020	5
	31	1/14/2020	3
	3B	10/28/2020	3
	36B	5/23/2020	2
	29	10/2/2020	1
	31	12/21/2020	1
	20A	11/20/2020	>1
	18A	3/26/2020	5
	27	8/22/2020	2
	3B	11/10/2020	1
	31	12/31/2020	3
	32	3/21/2020	1
	30A	1/12/2020	2
	3C	1/2/2020	6
	24A	1/18/2020	1
	36C	9/22/2020	8
	29	1/21/2020	1
	33	10/22/2020	1
	5B	3/9/2020	3
	17A	3/27/2020	2
	23	2/12/2020	2
	19B	1/10/2020	2
	20A	4/23/2020	3
	8	1/15/2020	4
	37B	3/8/2020	4
	19B	11/1/2020	UNABLE TO AGE
	34A	9/8/2020	2
	24B	11/13/2020	3
	10	11/21/2020	1
	33	11/8/2020	6
	33	1/23/2020	3
	29	12/28/2020	1
	36B	12/17/2020	UNABLE TO AGE
	6A	12/20/2020	UNABLE TO AGE
	20A	10/30/2020	1
	33	12/31/2020	1
	22	12/12/2020	3
	33	3/26/2020	2

2020 Arizona Mountain Lion Harvest - Tooth Age Results

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UPDATED: NOVEMBER 16, 2021

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	5A	2/14/2020	<1
	31	4/11/2020	2
	23	12/17/2020	2
	8	11/11/2020	3
	6A	9/20/2020	UNABLE TO AGE
	24A	2/2/2020	2
	1	1/17/2020	4
	36B	1/22/2020	<1
	33	11/7/2020	1
	32	9/5/2020	1
	8	11/8/2020	2
	3C	10/28/2020	4
	17B	11/5/2020	4
	5B	11/2/2020	2
	16A	11/22/2020	3
	8	12/29/2020	2
	22	12/19/2020	2
	11M	12/13/2020	2
	1	9/1/2020	1
	10	1/8/2020	2
	19A	10/27/2020	3
	24A	12/9/2020	5
	17A	12/19/2020	8
	27	9/27/2020	4
	22	3/10/2020	2
	23	7/8/2020	2
	22	8/30/2020	3
	38M	3/7/2020	9
	34A	6/5/2020	2
	30B	12/4/2020	1
	18B	3/19/2020	2
	16A	3/31/2020	4
	18B	12/29/2020	2
	22	8/29/2020	3
	36C	12/21/2020	2
	20C	8/23/2020	4
	21	12/14/2020	5
	36A	11/25/2020	6
	18A	10/25/2020	1
	6A	11/28/2020	3
	33	2/17/2020	4
	1	1/22/2020	3

2020 Arizona Mountain Lion Harvest - Tooth Age Results

*Teeth were submitted in multiple batches for aging. Results will be posted as they are received.

UPDATED: NOVEMBER 16, 2021

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	7	12/29/2020	3
	36B	10/26/2020	13
	20C	2/11/2020	5
	33	4/20/2020	3
	24A	9/21/2020	2
	1	1/2/2020	UNABLE TO AGE
	6A	12/6/2020	4
	24B	12/19/2020	1
	37B	2/17/2020	2
	22	2/16/2020	3
	17B	4/19/2020	4
	23	9/1/2020	8
	23	8/25/2020	2
	4A	3/20/2020	2
	32	3/17/2020	2
	37A	2/17/2020	9
	28	3/24/2020	7
	24B	11/19/2020	4
	30B	1/27/2020	4
	15A	10/23/2020	2
	21	10/26/2020	1
	21	10/26/2020	1
	4B	1/2/2020	3
	6A	11/7/2020	1
	24A	2/26/2020	4
	4B	12/30/2020	2
	21	8/10/2020	2
	22	8/24/2020	1
	4B	2/7/2020	3
	22	1/30/2020	2
	28	12/5/2020	3
	36B	2/23/2020	3
	32	10/11/2020	2
	16A	4/6/2020	6
	23	11/23/2020	1
	23	10/4/2020	8
	6A	9/2/2020	4
	13A	11/7/2020	1
	1	10/27/2020	1
	17A	12/19/2020	3
	2B	12/10/2020	3
	2B	12/10/2020	1

2020 Arizona Mountain Lion Harvest - Tooth Age Results

*Teeth were submitted in multiple batches for aging. Results will be posted as they are received.

UPDATED: NOVEMBER 16, 2021

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	29	2/25/2020	2
	6A	8/29/2020	2
	30B	1/2/2020	3
	32	11/28/2020	2
	28	12/18/2020	3
	22	1/9/2020	3
	16A	2/15/2020	4
	31	11/8/2020	6
	36C	11/8/2020	2
	29	10/29/2020	2
	18B	12/25/2020	1
	28	6/1/2020	2
	20C	2/14/2020	3
	22	2/1/2020	1
	33	4/17/2020	1
	17B	3/31/2020	2
	12A	11/11/2020	2
	35A	8/21/2020	UNABLE TO AGE
	17A	3/20/2020	2
	35B	8/29/2020	6
	1	12/16/2020	3
	28	3/10/2020	2
	33	12/5/2020	4
	27	3/31/2020	4
	6A	12/17/2020	1
	36C	12/5/2020	1
	36A	1/16/2020	3
	24A	2/24/2020	2
	34A	9/3/2020	1
	37B	1/2/2020	1

2021 Arizona Mountain Lion Harvest - Tooth Age Results

*Teeth were submitted in multiple batches for aging. Results will be posted as they are received. UPDATED: AUGUST 17, 2022

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	4A	1/27/2021	1
	36A	11/10/2021	2
	17B	10/22/2021	1
	11M	12/30/2021	2
	24A	3/25/2021	2
	24B	12/22/2021	2
	34A	11/8/2021	1
	23	1/30/2021	3
	24A	12/5/2021	5
	8	1/26/2021	3
	12A	10/1/2021	Unable to age, broken
	18A	9/11/2021	1
	16B	5/2/2021	2
	20C	8/13/2021	1
	30B	5/10/2021	2
	5A	8/11/2021	2
	16A	12/7/2021	3
	4A/4B	6/7/2021	3
	38M	9/10/2021	2
	5B	11/18/2021	Unable to age, broken
	19B	12/13/2021	5
	29	10/22/2021	4
	18B	12/13/2021	4
	22	1/31/2021	Unable to age, broken
	13B	1/27/2021	6
	10	1/30/2021	1
	21	12/27/2021	2
	5B	9/21/2021	1
	10	3/16/2021	4
	18B	3/14/2021	1
	21	2/1/2021	3
	36A	4/3/2021	3
	22	12/9/2021	2
	1	2/18/2021	4
	27	1/26/2021	2
	19A	10/15/2021	1
	30A	11/6/2021	2
	4A	12/7/2021	Unable to age, broken
	4B	1/27/2021	1
	4B	1/2/2021	1
	40A	1/10/2021	1
	9	9/19/2021	6
	9	1/27/2021	2

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	22	12/9/2021	1
	36C	12/19/2021	12
	17B	10/8/2021	3
	36C	2/4/2021	3
	31	11/6/2021	2
	18B	3/12/2021	Unable to age, broken
	18B	3/14/2021	3
	32	12/1/2021	2
	24A	2/19/2021	Unable to age, broken
	18B	10/31/2021	1
	18B	3/14/2021	2
	3B	2/20/2021	3
	20A	3/14/2021	2
	20C	1/28/2021	3
	20A	12/10/2021	1
	17B	4/6/2021	3
	4A	12/31/2021	2
	36B	10/24/2021	4
	35A	10/11/2021	1
	22	1/13/2021	2
	15B	1/26/2021	6
	34A	10/21/2021	6
	1	10/1/2021	3
	22	2/28/2021	1
	36A	12/9/2021	1
	22	3/4/2021	4
	33	12/9/2021	3
	36A	5/22/2021	2
	36A	4/17/2021	3
	34B	12/29/2021	2
	23	9/4/2021	2
	34A	11/26/2021	2
	23	2/25/2021	2
	10	2/15/2021	1
	5B	12/29/2021	4
	32	12/9/2021	3
	17B	1/30/2021	2
	18B	12/29/2021	3
	17A	2/22/2021	5
	19A	10/14/2021	3
	20C	10/10/2021	2
	17B	10/7/2021	1
	19A	10/8/2021	2
	20A	2/5/2021	2
	34A	10/25/2021	2
	10	1/30/2021	3

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	32	11/10/2021	2
	5A	11/7/2021	1
	27	4/21/2021	4
	7	2/15/2021	2
	4A	1/27/2021	2
	23	1/21/2021	1
	20A	4/3/2021	3
	30A	8/5/2021	4
	22	11/21/2021	3
	5B	1/30/2021	2
	29	12/29/2021	2
	18A	2/2/2021	3
	18A	10/23/2021	3
	13A	3/29/2021	4
	23	9/21/2021	2
	17B	3/2/2021	2
	12A	1/4/2021	2
	23	2/14/2021	5
	7	12/11/2021	2
	36C	2/19/2021	3
	5B	10/1/2021	6
	18B	8/29/2021	1
	21	1/10/2021	1
	1	9/1/2021	1
	10	12/29/2021	1
	7	1/31/2021	2
	31	3/20/2021	2
	22	1/4/2021	1
	36C	3/28/2021	2
	22	3/7/2021	2
	20A	11/2/2021	3
	44A	1/28/2021	6
	33	2/22/2021	3
	36A	11/8/2021	1
	12A	8/29/2021	2
	10	5/2/2021	3
	24B	1/27/2021	7
	21	1/27/2021	6
	36C	12/14/2021	4
	36B	1/3/2021	1
	36A	1/5/2021	4
	10	1/16/2021	5
	7	12/24/2021	2
	23	1/6/2021	4
	18A	11/23/2021	2
	24A	12/2/2021	2

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	1	2/14/2021	<1
	1	2/26/2021	2
	27	1/25/2021	1
	36A	12/28/2021	1
	36C	12/14/2021	Unable to age, broken
	3C	12/30/2021	1
	27	9/29/2021	4
	6A	9/6/2021	1
	1	1/20/2021	2
	18B	9/24/2021	3
	23	12/30/2021	2
	28	1/27/2021	2
	20A	1/24/2021	3
	20A	1/24/2021	2
	32	11/28/2021	1
	5B	11/8/2021	1
	18B	1/6/2021	4
	28	1/9/2021	<1
	6B	1/27/2021	3
	10	2/21/2021	1
	10	12/31/2021	2
	23	12/29/2021	1
	5B	1/29/2021	2
	37A	1/7/2021	1
	3C	1/30/2021	2
	36C	10/27/2021	3
	4B	1/25/2021	2
	4B	1/30/2021	2
	20A	3/23/2021	2
	23	12/29/2021	3
	22	2/5/2021	2
	1	9/12/2021	1
	36A	3/2/2021	5
	36B	2/27/2021	1
	33	10/29/2021	5
	1	1/25/2021	1
	9	3/16/2021	2
	10	3/25/2021	10
	10	12/28/2021	0
	19A	1/27/2021	7
	21	10/29/2021	2
	23	3/15/2021	Unable to age, broken
	37A	1/16/2021	2
	12A	1/21/2021	1
	20A	1/8/2021	1
	17B	3/18/2021	1

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	13B	11/7/2021	1
	27	1/27/2021	4
	22	11/9/2021	1
	34A	8/22/2021	2
	27	1/6/2021	5
	35A	11/6/2021	1
	35B	10/27/2021	1
	17B	1/14/2021	2
	7	3/24/2021	2
	36B	4/6/2021	8
	17B	3/6/2021	2
	24B	11/28/2021	1
	17B	11/27/2021	2
	23	11/14/2021	Unable to age, broken
	1	3/25/2021	3
	10	10/3/2021	2
	27	10/26/2021	2
	28	2/24/2021	4
	35B	9/30/2021	2
	36A	12/1/2021	1
	23	10/2/2021	2
	22	12/31/2021	1
	16A	3/8/2021	Unable to age, broken
	22	8/20/2021	1
	20A	2/21/2021	5
	17B	4/18/2021	6
	23	12/29/2021	1
	18B	1/24/2021	4
	8	12/2/2021	1
	17B	1/12/2021	2
	18A	3/14/2021	1
	24A	1/6/2021	3
	18A	11/30/2021	3
	9	1/28/2021	4
	10	12/30/2021	1
	36B	12/22/2021	1
	27	2/18/2021	1
	23	3/7/2021	3
	27	9/29/2021	4
	37A	10/2/2021	3
	5B	9/5/2021	1
	30A	10/23/2021	3
	17B	12/7/2021	3
	30B	1/26/2021	3
	36C	3/6/2021	3
	20C	10/3/2021	2

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	3C	8/23/2021	3
	12A	1/30/2021	3
	7	3/14/2021	1
	20C	2/9/2021	6
	31	1/23/2021	3
	19A	10/28/2021	3
	8	10/13/2021	1
	22	3/25/2021	3
	24A	11/8/2021	3
	8	10/2/2021	5
	12B	12/17/2021	1
	5A	11/2/2021	2
	30B	12/16/2021	3
	18A	11/17/2021	1
	18A	2/24/2021	6
	18A	11/13/2021	2
	37B	1/30/2021	1
	34A	12/26/2021	1
	5A	11/6/2021	4

2022 Arizona Mountain Lion Harvest - Tooth Age Results

*Teeth were submitted in multiple batches for aging. Results will be posted as they are received.

UPDATED: August 31, 2023

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	30A	3/15/2022	2
	18B	11/24/2022	1
	18B	11/20/2022	1
	12A	11/19/2022	3
	30B	3/11/2022	1
	35A	10/26/2022	1
	18B	12/29/2022	5
	36C	12/14/2022	5
	20B	1/29/2022	2
	17B	5/22/2022	3
	24A	10/29/2022	2
	24A	11/27/2022	3
	27	2/13/2022	2
	34A	10/3/2022	2
	3C	2/6/2022	2
	1	12/13/2022	1
	6B	8/23/2022	Unable to age; broken
	17B	11/4/2022	3
	22	1/10/2022	5
	28	10/12/2022	2
	23	11/14/2022	5
	1	12/29/2022	2
	19A	1/3/2022	3
	19B	12/14/2022	1
	22	12/17/2022	3
	33	1/22/2022	1
	28	10/1/2022	2
	5B	12/23/2022	1
	21	10/7/2022	1
	33	1/29/2022	3
	1	2/8/2022	3
	24B	2/24/2022	2
	36B	12/27/2022	2
	19B	11/28/2022	0
	29	10/12/2022	2
	28	2/18/2022	1
	21	12/18/2022	Unable to age; broken
	20C	2/24/2022	5
	10	2/25/2022	6

2022 Arizona Mountain Lion Harvest - Tooth Age Results

*Teeth were submitted in multiple batches for aging. Results will be posted as they are received.

UPDATED: August 31, 2023

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	22	3/6/2022	2
	40B	1/26/2022	1
	6A	9/1/2022	2
	28	10/1/2022	2
	12A	1/3/2022	3
	12A	2/28/2022	1
	27	11/10/2022	1
	20B	4/24/2022	1
	19A	1/19/2022	0
	1	2/20/2022	2
	19A	12/15/2022	1
	4B	8/30/2022	Unable to age; broken
	36A	1/1/2022	3
	23	1/22/2022	4
	1	3/17/2022	1
	22N	12/17/2022	5
	28	10/13/2022	2
	6A	11/30/2022	2
	22	12/10/2022	2
	4B	10/9/2022	3
	19A	3/8/2022	1
	6A	10/7/2022	3
	17B	12/12/2022	6
	24A	11/26/2022	0
	5A	11/10/2022	2
	12A	12/14/2022	2
	23	3/8/2022	Unable to age; broken
	37B	12/14/2022	7
	24B	3/3/2022	6
	20C	11/29/2022	1
	36B	1/7/2022	0
	3C	11/27/2022	2
	23	11/27/2022	1
	36C	12/19/2022	Unable to age; broken
	36B	12/21/2022	4
	36B	2/19/2022	2
	36B	1/15/2022	0
	31	11/17/2022	Unable to age; broken
	7	10/21/2022	3

2022 Arizona Mountain Lion Harvest - Tooth Age Results

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UPDATED: August 31, 2023

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	17B	7/16/2022	1
	18A	12/25/2022	2
	18A	11/16/2022	2
	12A	1/31/2022	Unable to age; broken
	20B	10/24/2022	1
	17B	3/22/2022	2
	5B	3/23/2022	1
	33	12/13/2022	4
	30B	12/31/2022	1
	9	12/10/2022	6
	4A	3/30/2022	1
	17B	11/2/2022	4
	22	2/16/2022	1
	5B	9/18/2022	2
	37B	1/1/2022	Unable to age; broken
	33	3/21/2022	6
	13A	3/25/2022	1
	36B	11/4/2022	5
	17A	12/2/2022	Unable to age; broken
	23	2/4/2022	2
	24A	1/28/2022	1
	23	11/6/2022	1
	18B	12/14/2022	2
	33	5/1/2022	5
	17B	11/6/2022	0
	32	3/5/2022	2
	29	3/17/2022	3
	23	12/18/2022	0
	32	12/20/2022	7
	20B	2/8/2022	4
	23	8/28/2022	1
	1	12/13/2022	1
	22N	3/3/2022	1
	4A	9/3/2022	1
	23	11/5/2022	1
	36A	2/9/2022	4
	20A	12/27/2022	2
	19A	10/25/2022	1
	33	1/1/2022	2

2022 Arizona Mountain Lion Harvest - Tooth Age Results

*Teeth were submitted in multiple batches for aging. Results will be posted as they are received.

UPDATED: August 31, 2023

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	36A	9/18/2022	1
	27	1/29/2022	3
	6B	10/5/2022	8
	42	11/4/2022	1
	37B	11/22/2022	3
	23	12/19/2022	1
	5B	11/30/2022	1
	6A	2/24/2022	1
	20A	3/9/2022	1
	44A	5/13/2022	1
	5A	3/31/2022	1
	44A	3/2/2021	3
	20B	2/13/2022	1
	31	4/21/2022	3
	18A	2/11/2022	2
	18A	3/8/2022	2
	20C	3/31/2022	4
	3C	12/28/2022	1
	29	12/22/2022	Unable to age; broken
	12A	8/19/2022	4
	6A	12/16/2022	1
	5B	8/22/2022	2
	31	12/11/2022	1
	8	12/14/2022	Unable to age; broken
	24B	12/18/2022	3
	20B	10/30/2022	Unable to age; broken
	27	12/26/2022	3
	7	1/2/2022	2
	34A	1/2/2022	1
	18A	12/17/2022	1
	20A	12/12/2022	6
	24B	1/2/2022	1
	24B	10/22/2022	0
	12A	10/22/2022	1
	17B	2/24/2022	2
	24B	12/29/2022	5
	24B	11/22/2022	2
	34A	2/18/2022	3
	37B	3/3/2022	3

2022 Arizona Mountain Lion Harvest - Tooth Age Results

*Teeth were submitted in multiple batches for aging. Results will be posted as they are received.

UPDATED: August 31, 2023

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	20B	12/23/2022	5
	12A	9/1/2022	2
	37A	12/14/2022	3
	3C	5/23/2022	5
	5B	5/4/2022	1
	12A	2/24/2022	3
	5A	11/27/2022	1
	10	11/27/2022	1
	36C	1/13/2022	1
	6A	11/13/2022	4
	36A	12/16/2022	3
	4B	11/16/2022	1
	31	3/9/2022	1
	30B	9/30/2022	0
	28	12/13/2022	2
	17B	10/31/2022	2
	19A	12/5/2022	3
	34A	10/30/2022	2
	13A	2/18/2022	1
	27	2/18/2022	1
	22	12/31/2022	Unable to age; broken
	34A	4/12/2022	6
	21	1/4/2022	1
	21	5/24/2022	Unable to age; broken
	36B	12/15/2022	1
	29	2/19/2022	1
	5B	8/22/2022	8
	29	11/13/2022	5
	6A	2/17/2022	1
	17A	10/7/2022	3
	1	3/27/2022	1
	34A	2/24/2022	0
	10	2/21/2022	8
	10	3/20/2022	2
	10	2/25/2022	2
	23	12/29/2022	2
	5B	12/13/2022	Unable to age; broken
	24A	3/6/2022	9
	4A	12/2/2022	1

2022 Arizona Mountain Lion Harvest - Tooth Age Results

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UPDATED: August 31, 2023

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	27	11/4/2022	Unable to age; broken
	8	12/18/2022	1
	33	1/2/2022	2
	23S	1/18/2022	4
	22	8/21/2022	1
	18B	3/31/2022	1
	6A	2/24/2022	2
	7	12/17/2022	2
	6A	2/17/2022	2
	20A	12/15/2022	1
	20C	1/1/2022	1
	17B	1/7/2022	3
	6A	3/30/2022	4
	22	12/13/2022	1
	37B	1/5/2022	1
	19A	12/26/2022	2
	36C	6/14/2022	6
	35B	1/4/2022	3
	29	12/23/2022	4
	27	12/15/2022	2
	20A	12/7/2022	2
	18B	12/27/2022	1
	17B	9/20/2022	2
	16A	1/11/2022	2
	24B	11/22/2022	2
	36B	12/19/2022	4
	7	10/21/2022	2
	34A	12/8/2022	Unable to age; broken
	5B	3/24/2022	1
	31	11/14/2022	3
	5B	1/20/2022	4
	35A	2/25/2022	0
	10	8/19/2022	5
	22	1/1/2022	1
	27	12/3/2022	2
	18A	11/15/2022	0
	21	2/10/2022	1
	22	10/16/2022	5
	9	12/13/2022	1

2022 Arizona Mountain Lion Harvest - Tooth Age Results

*Teeth were submitted in multiple batches for aging. Results will be posted as they are received.

UPDATED: August 31, 2023

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	31	3/11/2022	3
	23	2/23/2022	8
	3C	12/19/2022	Unable to age; broken
	6A	2/24/2022	1
	19A	8/20/2022	5
	22	10/10/2022	1
	17B	10/12/2022	2
	18B	9/25/2022	5
	17B	12/9/2022	1
	29	4/5/2022	6
	32	12/22/2022	1
	19A	10/28/2022	1
	4B	12/13/2022	4
	20A	12/13/2022	6
	22	10/22/2022	2
	5B	10/2/2022	3
	27	12/13/2022	3
	12AE	12/29/2022	1
	6B	11/10/2022	6
	31	12/5/2022	3
	36B	3/4/2022	2
	1	2/25/2022	1
	20A	12/18/2022	1
	36B	11/4/2022	1
	17B	10/21/2022	4
	3B	12/20/2022	1
	18A	12/17/2022	1
	5B	12/12/2022	3
	7	3/11/2022	1
	21	2/24/2022	2
	30B	3/13/2022	3
	20C	12/13/2022	2
	33	12/2/2022	6
	36A	1/9/2022	3
	23	12/7/2022	1
	21	2/12/2022	3
	18B	10/14/2022	2
	36B	8/27/2022	4
	4A	1/19/2022	3

2023 Arizona Mountain Lion Harvest - Tooth Age Results

*Teeth were submitted in multiple batches for aging. Results will be posted as they are received.

UPDATED: August 12, 2024

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	12A	8/29/2023	2
	12A	9/10/2023	1
	36A	10/28/2023	2
	36A	10/28/2023	3
	34B	12/17/2023	3
	6B	9/26/2023	2
	34A	3/4/2023	3
	1	12/2/2023	5
	33	1/4/2023	Age Unattainable
	27	2/27/2023	Age Unattainable
	22	1/20/2023	3
	24A	2/25/2023	2
	30B	12/18/2023	Age Unattainable
	24A	11/5/2023	2
	10	11/4/2023	5
	32	11/2/2023	2
	20C	2/4/2023	3
	4A	1/4/2023	3
	10	10/22/2023	2
	4A	1/21/2023	Age Unattainable
	6A	12/12/2023	3
	6A	11/17/2023	2
	17A	9/28/2023	1
	35A	3/26/2023	5
	20C	2/2/2023	Age Unattainable
	33	3/12/2023	Age Unattainable
	8	12/7/2023	6
	30A	11/9/2023	2
	24B	2/18/2023	2
	36B	2/24/2023	1
	22	2/18/2023	3
	37B	2/21/2023	4
	20A	1/8/2023	2
	22	11/2/2023	3
	3C	1/2/2023	2
	23	9/15/2023	2
	31	11/12/2023	2
	17B	10/8/2023	2
	33	2/24/2023	1
	34A	3/30/2023	9

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	4B	1/24/2023	1
	33	9/14/2023	Age Unattainable
	33	2/6/2023	Age Unattainable
	6B	10/13/2023	2
	18B	9/11/2023	1
	24B	11/20/2023	0
	22	1/20/2023	1
	33	11/27/2023	1
	21	10/28/2023	2
	36A	3/3/2023	3
	23	1/4/2023	2
	36C	2/23/2023	5
	33	9/12/2023	2
	36C	2/25/2023	3
	36C	1/21/2023	Age Unattainable
	36B	3/7/2023	1
	27	10/14/2023	2
	27	11/22/2023	1
	34B	10/31/2023	7
	20B	2/8/2023	5
	6A	11/19/2023	1
	34A	1/26/2023	7
	36A	10/27/2023	4
	36C	10/29/2023	6
	12AW	8/29/2023	1
	24B	11/27/2023	7
	27	12/3/2023	1
	20C	1/13/2023	5
	1	1/21/2023	1
	36C	2/8/2023	8
	28	5/4/2023	2
	34A	12/4/2023	2
	36B	12/10/2023	4
	10	2/24/2023	3
	15B	12/17/2023	Age Unattainable
	18A	11/24/2023	0
	1	12/24/2023	3
	1	12/26/2023	2
	12AE	2/18/2023	1
	18A	2/14/2023	1
	15B	1/11/2023	1
	33	9/13/2023	1
	22	10/8/2023	4

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	10	3/22/2023	3
	30B	12/8/2023	2
	30B	12/27/2023	2
	35B	3/4/2023	5
	12AW	12/11/2023	3
	22	1/21/2023	2
	34A	11/1/2023	2
	18B	12/12/2023	1
	17A	10/8/2023	1
	36B	10/28/2023	1
	17B	2/18/2023	1
	5B	9/18/2023	1
	19A	10/23/2023	Age Unattainable
	32	4/13/2023	4
	1	3/18/2023	4
	27	3/3/2023	4
	22	2/9/2023	3
	37B	6/25/2023	6
	6A	10/7/2023	5
	16A	3/9/2023	3
	17A	2/27/2023	1
	23	12/8/2023	2
	24B	11/11/2023	6
	31	4/23/2023	1
	28	12/22/2023	3
	12AW	1/10/2023	2
	37B	3/4/2023	5
	28	2/27/2023	2
	31	3/11/2023	1
	6A	8/25/2023	1
	28	2/20/2023	3
	21	12/30/2023	1
	3C	1/3/2023	1
	17B	2/15/2023	4
	21	12/27/2023	1
	17B	2/26/2023	Age Unattainable
	19A	10/29/2023	1
	20A	1/11/2023	2
	4B	1/20/2023	5
	24B	2/11/2023	1
	18A	11/28/2023	5
	20A	2/21/2023	2
	21	1/2/2023	1

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	10	1/29/2023	2
	7E	4/23/2023	3
	29	12/3/2023	3
	17B	1/18/2023	0
	18B	12/15/2023	2
	10	4/2/2023	3
	29	12/5/2023	2
	8	12/4/2023	1
	17B	2/11/2023	2
	29	1/24/2023	2
	22	11/3/2023	1
	20A	2/27/2023	4
	36A	4/25/2023	5
	32	4/21/2023	3
	12A	1/5/2023	Age Unattainable
	12A	1/5/2023	Age Unattainable
	35B	10/23/2023	10
	34A	8/25/2023	2
	3C	1/2/2023	1
	34A	9/2/2023	1
	37B	11/5/2023	4
	29	11/12/2023	2
	10	2/25/2023	1
	12A	12/15/2023	2
	10	1/22/2023	2
	27	1/24/2023	4
	21	2/10/2023	Age Unattainable
	21	12/13/2023	9
	24A	11/12/2023	4
	33	11/15/2023	2
	36A	11/24/2023	1
	22	9/2/2023	3
	22	11/19/2023	3
	21	1/20/2023	1
	36A	12/31/2023	4
	32	12/31/2023	7
	35B	3/8/2023	3
	24A	8/27/2023	6
	17B	11/2/2023	5
	5B	1/16/2023	2
	17A	2/25/2023	1
	32	11/10/2023	5
	15B	1/26/2023	3

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	18B	10/7/2023	1
	36B	4/9/2023	5
	1	12/24/2023	0
	12A	1/4/2023	1
	22	1/14/2023	4
	20A	3/8/2023	8
	23	12/24/2023	4
	18A	1/20/2023	5
	7	1/25/2023	2
	36A	10/27/2023	1
	30B	3/8/2023	1
	17B	9/25/2023	6
	22	1/7/2023	1
	36A	11/25/2023	3
	17B	12/5/2023	1
	21	11/10/2023	4
	27	8/25/2023	2
	30B	1/21/2023	6
	1	12/23/2023	2
	23	12/1/2023	2
	22	12/4/2023	2
	20A	12/23/2023	4
	37B	12/17/2023	7
	36A	3/12/2023	2
	29	1/2/2023	5
	23	1/23/2023	6
	3B	12/2/2023	2
	36C	1/27/2023	1
	12A	2/11/2023	3
	10	1/4/2023	4
	5B	12/7/2023	2
	23	10/1/2023	Age Unattainable
	18B	11/10/2023	4
	19B	10/5/2023	1
	12AW	3/4/2023	0
	34A	11/4/2023	2
	27	10/29/2023	2
	17B	1/20/2023	2
	27	10/10/2023	6
	20A	2/24/2023	2
	20A	2/24/2023	3
	7	1/24/2023	8
	36B	2/7/2023	2

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	20A	3/7/2023	2
	17B	10/6/2023	2
	17B	10/6/2023	1
	17B	10/6/2023	1
	36B	2/1/2023	10
	10	1/21/2023	2
	17B	2/28/2023	5
	27	8/31/2023	1
	20A	3/8/2023	3
	20A	2/25/2023	2
	9	3/31/2023	1
	31	12/28/2023	0
	20A	1/4/2023	6
	16A	1/15/2023	1
	27	1/10/2023	2
	3C	9/9/2023	Age Unattainable
	21	1/8/2023	2
	36B	1/21/2023	1
	29	3/18/2023	2
	20A	12/31/2023	2
	34A	1/8/2023	3
	18B	1/2/2023	1
	31	9/12/2023	4
	24A	1/12/2023	2
	21	10/29/2023	1
	17B	1/19/2023	2
	17B	11/4/2023	1
	20A	2/28/2023	5
	23	2/26/2023	5
	21	2/15/2023	2
	20C	6/11/2023	0
	23	2/8/2023	Age Unattainable
	23	11/21/2023	8
	22	12/2/2023	1
	29	3/3/2023	1
	23	1/24/2023	4
	18A	2/24/2023	3
	10	1/6/2023	2
	37B	3/1/2023	2
	22N	2/17/2023	2
	35B	12/6/2023	0
	30B	11/14/2023	1
	31	2/7/2023	4

LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	34A	3/27/2023	5
	18A	2/15/2023	3
	10	1/4/2023	2
	27	12/30/2023	1
	27	1/2/2023	3
	30B	11/1/2023	3
	29	3/16/2023	5
	28	4/5/2023	2
	33	1/13/2023	2
	33	1/24/2023	5
	36B	2/12/2023	4
	27	1/23/2023	Age Unattainable
	18A	9/3/2023	2
	12AW	1/3/2023	3
	37A	12/26/2023	3
	5A	11/26/2023	1
	20A	2/26/2023	4
	3C	1/16/2023	5

2024 Arizona Mountain Lion Harvest - Tooth Age Results

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LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
	22	6/25/2024	0
	22	6/25/2024	1
	22N	11/14/2024	Age Unattainable
[redacted]	32	3/29/2024	4
	3B	1/6/2024	6
	1	3/14/2024	3
	31	10/12/2024	Age Unattainable
	24B	12/28/2023	2
	6A	1/6/2024	5
	5B	1/4/2024	2
	33	1/15/2024	7
	24A	12/16/2023	1
	22	2/18/2024	6
	22	12/21/2024	1
	3C	1/12/2024	Age Unattainable
	17B	12/6/2024	2
	3C	1/8/2024	3
	35A	12/4/2024	1
	4A	1/4/2024	1
	9	1/13/2024	1
	21	3/14/2024	4
	17A	1/8/2024	3
	34A	1/4/2025	Age Unattainable
	37B	2/1/2024	4
	10	9/5/2024	2
	30A	2/6/2024	0
	33	2/11/2024	1
	31	9/15/2024	4
	28	5/29/2024	Age Unattainable
	32	1/6/2024	6
	31	1/3/2024	6
	6A	1/30/2025	7
	31	3/24/2024	6
	36B	12/1/2023	3
	36C	3/4/2024	Age Unattainable
	22	9/30/2024	2
	1	1/6/2024	2
	13A	1/5/2024	4
	4A	1/6/2024	3
	17B	12/31/2024	1
	23	1/18/2024	2
	35B	12/12/2024	5
	22	1/8/2025	1
	36B	11/8/2024	2
	3C	1/13/2024	1
	18A	11/18/2024	2
	34A	11/29/2024	2
	1	2/11/2024	Age Unattainable
	22	1/14/2024	2
	12A	11/27/2024	4
	21	12/28/2024	2
	28	3/10/2024	2
	31	2/20/2024	4
	20C	1/10/2024	Age Unattainable
	35B	2/19/2024	2
	30A	11/10/2024	2
	36A	1/26/2024	4
	7	2/3/2024	7
	24B	2/19/2024	3
	37B	12/10/2024	4
	20B	12/12/2024	6
	4A	1/5/2024	7
	6A	11/7/2024	1
	30B	2/6/2024	1
	31	3/29/2024	2

2024 Arizona Mountain Lion Harvest - Tooth Age Results

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LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	28	11/19/2024	4
	20A	1/29/2025	4
	1	1/5/2024	1
	18A	11/24/2024	2
	18A	11/8/2024	1
	18A	11/11/2024	3
	18A	12/7/2023	5
	32	4/6/2024	1
	18B	1/6/2025	2
	36A	2/8/2024	1
	36A	2/3/2024	3
	17B	1/4/2024	5
	1	1/24/2024	2
	23	11/19/2024	5
	29	11/11/2024	2
	35B	2/25/2024	1
	34A	10/5/2024	1
	20A	2/3/2025	7
	37B	1/14/2024	3
	27	1/5/2024	3
	31	3/13/2024	4
	12A	12/5/2024	2
	17B	3/22/2024	1
	4B	2/10/2024	1
	30B	11/22/2024	2
	44A	12/1/2024	2
	6A	12/21/2024	2
	30A	5/15/2022	3
	24A	10/20/2024	5
	23	2/9/2024	3
	17B	1/10/2024	6
	35B	1/14/2024	1
	5B	1/28/2025	2
	18A	11/22/2024	2
	30B	10/25/2024	6
	37B	12/17/2024	2
	17B	1/15/2025	3
	3C	11/4/2024	1
	23	2/4/2023	1
	28	5/10/2024	1
	3C	1/24/2024	1
	27	1/14/2024	3
	20A	2/4/2024	2
	20B	1/16/2024	3
	34A	10/12/2024	3
	32	3/7/2024	Age Unattainable
	36C	3/12/2024	Age Unattainable
	4A	10/10/2024	2
	36B	1/12/2024	2
	12A	2/4/2024	3
	33	5/3/2024	9
	21	11/14/2024	1
	36B	2/25/2024	2
	33	12/27/2024	2
	19A	12/23/2024	2
	7W	4/21/2024	5
	1	11/7/2024	3
	27	1/9/2024	2
	17B	9/2/2024	1
	21	1/7/2024	3
	7W	1/5/2024	3
	17B	2/5/2024	5
	6A	8/30/2024	2
	18A	12/31/2024	2
	18A	1/12/2024	2

2024 Arizona Mountain Lion Harvest - Tooth Age Results

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LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	18A	8/25/2024	4
	20A	2/4/2024	2
	18B	2/29/2024	8
	22N	2/10/2024	3
	5B	12/8/2024	5
	23	1/12/2024	7
	6A	11/30/2024	2
	1	8/14/2024	1
	29	2/19/2024	5
	29	2/11/2024	5
	31	1/16/2024	1
	15A	1/13/2025	1
	23	2/17/2024	6
	24B	3/20/2024	4
	12A	1/4/2024	1
	12A	2/18/2024	Age Unattainable
	22	1/24/2024	7
	18A	1/30/2024	1
	11M	9/16/2024	1
	7	1/9/2024	2
	27	2/9/2024	Age Unattainable
	22	2/9/2024	3
	35B	2/13/2024	6
	36A	2/11/2024	1
	30A	1/15/2025	7
	30A	1/15/2025	Age Unattainable
	35A	2/1/2024	Age Unattainable
	21	3/21/2024	9
	33	11/7/2024	3
	4A	11/8/2024	3
	12A	5/12/2024	2
	36B	10/24/2024	2
	24B	8/27/2024	2
	35A	8/25/2024	1
	22	1/29/2024	9
	12A	2/9/2024	2
	13B	1/13/2024	4
	10	2/10/2024	2
	36A	3/10/2024	7
	35B	1/30/2025	2
	31	2/25/2024	7
	4B	1/12/2024	Age Unattainable
	28	1/29/2024	6
	30B	9/14/2024	2
	17B	11/3/2024	1
	5B	1/4/2024	6
	34A	2/4/2024	4
	23S	5/16/2024	1
	20A	11/29/2024	5
	29	1/12/2024	1
	21	9/29/2024	1
	1	1/12/2024	7
	5B	12/5/2024	1
	5B	10/18/2024	1
	6A	8/26/2024	1
	7	1/6/2024	2
	33	4/20/2024	8
	36B	10/25/2024	2
	6A	11/12/2024	4
	18A	1/6/2024	1
	33	12/28/2024	Age Unattainable
	22	12/9/2024	4
	34A	1/8/2024	1
	20A	1/20/2024	5
	30B	11/30/2024	1

2024 Arizona Mountain Lion Harvest - Tooth Age Results

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LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	24B	3/13/2024	11
	7	2/15/2024	2
	4B	1/8/2024	2
	33	11/19/2024	3
	37B	2/24/2024	10
	28	1/20/2025	Age Unattainable
	22	2/30/2024	3
	36B	1/4/2025	2
	20A	2/9/2024	2
	3C	1/4/2024	2
	6A	11/26/2024	4
	24B	11/12/2024	2
	35B	2/21/2024	8
	18A	2/28/2024	2
	37B	1/1/2025	6
	22	1/8/2024	2
	18A	1/12/2024	8
	31	1/27/2024	1
	31	3/3/2024	4
	23	1/8/2024	4
	22	11/7/2024	3
	9	3/22/2024	Age Unattainable
	9	3/16/2024	5
	29	2/11/2024	2
	3C	1/9/2024	6
	23	2/3/2024	Age Unattainable
	31	1/22/2024	6
	36B	1/22/2025	3
	5B	9/14/2024	2
	33	12/5/2024	3
	22	1/11/2025	6
	1	2/4/2024	6
	29	2/11/2024	5
	19B	2/9/2024	4
	36C	10/27/2024	3
	31	1/24/2024	0
	8	1/8/2024	6
	36C	2/25/2024	6
	1	8/10/2024	Age Unattainable
	30A	12/21/2024	2
	10	12/28/2024	4
	29	10/5/2024	1
	20A	11/12/2024	1
	32	1/14/2024	2
	24A	12/1/2024	0
	34B	12/18/2024	2
	6A	8/28/2024	3
	20C	2/9/2024	1
	18B	12/26/2024	2
	22N	1/10/2024	4
	5A	1/5/2024	1
	33	11/24/2024	1
	34A	10/26/2024	4
	18A	1/14/2025	3
	24A	1/14/2024	3
	20A	1/4/2024	5
	24A	11/31/2024	3
	19B	2/25/2024	0
	4A	2/9/2024	10
	24A	12/16/2024	1
	17B	12/13/2024	2
	23	1/8/2024	Age Unattainable
	24A	3/18/2024	2
	16A	2/18/2024	6
	20A	1/8/2024	1

2024 Arizona Mountain Lion Harvest - Tooth Age Results

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LAST NAME	UNIT	DATE OF HARVEST	TOOTH AGE
[redacted]	23	1/8/2024	3
	34A	5/27/2024	Age Unattainable
	33	3/19/2024	2
	8	1/29/2025	3
	34A	10/4/2024	4
	28	12/7/2024	1
	17B	12/26/2024	2
	1	12/1/2024	1
	35B	1/23/2025	Age Unattainable
	35B	1/23/2025	1
	35B	1/20/2024	1
	30B	11/11/2024	4
	36A	9/1/2024	1
	30B	11/9/2024	1
	30B	11/9/2024	1
	36B	11/16/2024	3
	33	3/16/2024	4
	34A	1/23/2025	0
	34A	12/18/2024	1
	20B	2/6/2024	2
	34A	3/4/2024	3
	16A	1/3/2024	3
	3B	12/6/2024	1
	1	11/5/2024	1
	22	1/22/2024	1
	37B	11/6/2024	3
	5B	1/8/2024	1

EXHIBIT E

2021-2022 MOUNTAIN LION HARVEST THRESHOLDS AND ZONE STATUS

SEASON DATES		ZONES	UNITS	HARVEST THRESHOLD	# HARVESTED	# REMAINING	ZONE STATUS	CLOSED TO TAKE AS OF SUNDOWN ON:
Aug 20, 2021	May 31, 2022	A	13A, 13B	12	2	10	OPEN	
Aug 20, 2021	May 31, 2022	B	12A, 12B	14	7	7	OPEN	
Aug 20, 2021	May 31, 2022	C	15A, 15B, 15C, 15D	4	1	3	OPEN	
Aug 20, 2021	May 31, 2022	D	7, 9, 10, 11M	19	20	0	CLOSED	Wednesday, March 23, 2022
Aug 20, 2021	May 31, 2022	E	16A, 16B, 18A, 18B	17	17	0	CLOSED	Wednesday, May 4, 2022
Aug 20, 2021	May 31, 2022	F	17A, 17B, 19B, 20A, 20B, 20C	37	33	4	OPEN	
Aug 20, 2021	May 31, 2022	G	4A, 4B, 5A, 5B, 6A, 6B, 8, 19A	32	32	0	CLOSED	Wednesday, March 23, 2022
Aug 20, 2021	May 31, 2022	H	2A, 2B, 2C, 3A, 3B, 3C	7	7	0	CLOSED	Wednesday, May 25, 2022
Aug 20, 2021	May 31, 2022	I	42, 44A	5	0	5	OPEN	
Aug 20, 2021	May 31, 2022	J	21, 22, 23, 24A, 24B, 25M, 26M	48	38	10	OPEN	
Aug 20, 2021	May 31, 2022	K	1, 27	29	14	15	OPEN	
Aug 20, 2021	May 31, 2022	L	39, 41, 43A, 43B, 44B, 45A, 45B, 45C	3	2	1	OPEN	
Aug 20, 2021	May 31, 2022	M	28, 31, 32, 33, 37A, 37B, 38M	59	22	37	OPEN	
Aug 20, 2021	May 31, 2022	N	40A, 40B, 46A, 46B	4	0	4	OPEN	
Aug 20, 2021	May 31, 2022	P	29, 30A, 30B, 34A, 34B, 35A, 35B, 36A, 36B, 36C	68	44	24	OPEN	

Mountain Lion Tracking

2022-2023 MOUNTAIN LION HARVEST THRESHOLDS AND ZONE STATUS

SON DATES	ZONES	UNITS	HARVEST THRESHOLD	# HARVESTED	# REMAINING	ZONE STATUS
May 31, 2023	A	13A, 13B	12	3	9	OPEN (check season dates)
May 31, 2023	B	12A, 12B	17	13	4	OPEN (check season dates)
May 31, 2023	C	15A, 15B, 15C, 15D	4	2	2	OPEN (check season dates)
May 31, 2023	D	7, 9, 10, 11M	18	18	0	CLOSED
May 31, 2023	E	16A, 16B, 18A, 18B	17	17	0	CLOSED
May 31, 2023	F	17A, 17B, 19B, 20A, 20B, 20C	42	45	0	CLOSED
May 31, 2023	G1	4A, 4B, 5A, 5B	16	18	0	CLOSED
May 31, 2023	G2	6A, 6B, 8, 19A	16	23	0	CLOSED
May 31, 2023	H	2A, 2B, 2C, 3A, 3B, 3C	7	7	0	CLOSED
May 31, 2023	I	42, 44A	5	1	4	OPEN (check season dates)
May 31, 2023	J	21, 22, 23, 24A, 24B, 25M, 26M	56	57	0	CLOSED
May 31, 2023	K	1, 27	25	22	3	OPEN (check season dates)
May 31, 2023	L	39, 41, 43A, 43B, 44B, 45A, 45B, 45C	3	0	3	OPEN (check season dates)
May 31, 2023	M	28, 31, 32, 33, 37A, 37B, 38M	51	35	16	OPEN (check season dates)
May 31, 2023	N	40A, 40B, 46A, 46B	4	1	3	OPEN (check season dates)
May 31, 2023	P	29, 30A, 30B, 34A, 34B, 35A, 35B, 36A, 36B, 36C	61	58	3	OPEN (check season dates)

Mountain Lion Tracking

2023-2024 MOUNTAIN LION HARVEST THRESHOLDS AND ZONE STATUS

ONES	UNITS	HARVEST THRESHOLD	# HARVESTED	# REMAINING	ZONE STATUS	CLOSED TO TAKE AS OF SUNDOWN O
A	13A, 13B	12	2	10	OPEN	
B	12A, 12B	18	14	4	OPEN	
C	15A, 15B, 15C, 15D	4	1	3	OPEN	
D	7, 9, 10, 11M	18	11	7	OPEN	
E	16A, 16B, 18A, 18B	19	19	0	CLOSED (Harvest Threshold Met)	Wednesday, April 10, 2024
F	17A, 17B, 19B, 20A, 20B, 20C	35	36	0	CLOSED (Harvest Threshold Met)	Wednesday, February 28, 2024
G1	4A, 4B, 5A, 5B	16	17	0	CLOSED (Harvest Threshold Met)	Wednesday, February 14, 2024
G2	6A, 6B, 8, 19A	16	16	0	CLOSED (Harvest Threshold Met)	Wednesday, January 10, 2024
H	2A, 2B, 2C, 3A, 3B, 3C	7	9	0	CLOSED (Harvest Threshold Met)	Wednesday, January 17, 2024
I	42, 44A	5	0	5	OPEN	
J	21, 22, 23, 24A, 24B, 25M, 26M	54	55	0	CLOSED (Harvest Threshold Met)	Wednesday, March 20, 2024
K	1, 27	25	25	0	CLOSED (Harvest Threshold Met)	Wednesday, March 20, 2024
L	39, 41, 43A, 43B, 44B, 45A, 45B, 45C	3	1	2	OPEN	
M	28, 31, 32, 33, 37A, 37B, 38M	52	41	11	OPEN	
N	40A, 40B, 46A, 46B	4	1	3	OPEN	
N	40A, 40B, 46A, 46B - **Female Harvest Threshold**	1	0	1	OPEN	
P	29, 30A, 30B, 34A, 34B, 35A, 35B, 36A, 36B, 36C including FTHU	60	62	0	CLOSED (Harvest Threshold Met)	Wednesday, March 13, 2024

Mountain Lion Tracking

2024-2025 MOUNTAIN LION HARVEST THRESHOLDS AND ZONE STATUS

IPHONE USERS: DOUBLE TAP YOUR SCREEN TO SCROLL UP AND DOWN

	ZONES	UNITS	HARVEST THRESHOLD	# HARVESTED	# REMAINING	ZONE STATUS
lay 31, 2025	A	13A, 13B	12	2	10	OPEN
lay 31, 2025	B	12A, 12B	19	13	6	OPEN
lay 31, 2025	C	15A, 15B, 15C, 15D	4	1	3	OPEN
lay 31, 2025	D	7, 9, 10, 11M	18	16	2	OPEN
lay 31, 2025	E	16A, 16B, 18A, 18B	22	18	4	OPEN
lay 31, 2025	F	17A, 17B, 19B, 20A, 20B, 20C	29	32	0	CLOSED (Harvest Threshold Met)
lay 31, 2025	G1	4A, 4B, 5A, 5B	16	17	0	CLOSED (Harvest Threshold Met)
lay 31, 2025	G2	6A, 6B, 8, 19A	17	17	0	CLOSED (Harvest Threshold Met)
lay 31, 2025	H	2A, 2B, 2C, 3A, 3B, 3C	7	6	1	OPEN
lay 31, 2025	I	42, 44A	5	1	4	OPEN
lay 31, 2025	J	21, 22, 23, 24A, 24B, 25M, 26M	55	41	14	OPEN
lay 31, 2025	K	1, 27	30	27	3	OPEN
lay 31, 2025	L	39, 41, 43A, 43B, 44B, 45A, 45B, 45C	3	0	3	OPEN
lay 31, 2025	M	28, 31, 32, 33, 37A, 37B, 38M	52	33	19	OPEN
lay 31, 2025	N	40A, 40B, 46A, 46B	4	1	3	OPEN
lay 31, 2025	P	29, 30A, 30B, 34A, 34B, 35A, 35B, 36A, 36B, 36C including FTHU	64	54	10	OPEN

https://harvest-tracking.azgfd.gov/harvest-tracking-3/

2025-2026 MOUNTAIN LION HARVEST THRESHOLDS AND ZONE STATUS

REFRESH THESE PAGES OFTEN, AS NEW HARVESTS ARE REPORTED.

IPHONE USERS: DOUBLE TAP YOUR SCREEN TO SCROLL UP AND DOWN.

SEASON OPENS	SEASON CLOSES	ZONES	UNITS	HARVEST LIMIT	# HARVESTED	# REMAINING	ZONE STATUS	CLOSED TO TAKE AS OF SUNDOWN ON
Aug 22, 2025	May 31, 2026	A	13A, 13B	12	6	6	OPEN	
Aug 22, 2025	May 31, 2026	B	12A, 12B	19	14	5	OPEN	
Aug 22, 2025	May 31, 2026	C	15A, 15B, 15C, 15D	4	2	2	OPEN	
Aug 22, 2025	May 31, 2026	D	7, 9, 10, 11M	18	19	0	CLOSED (Harvest Limit Met)	Wednesday, February 25, 2026
Aug 22, 2025	May 31, 2026	E	16A, 16B, 18A, 18B	23	12	11	OPEN	
Aug 22, 2025	May 31, 2026	F	17A, 17B, 19B, 20A, 20B, 20C	31	32	0	CLOSED (Harvest Limit Met)	Wednesday, February 11, 2026
Aug 22, 2025	May 31, 2026	G1	4A, 4B, 5A, 5B	16	18	0	CLOSED (Harvest Limit Met)	Wednesday, January 14, 2026
Aug 22, 2025	May 31, 2026	G2	6A, 6B, 8, 19A	17	17	0	CLOSED (Harvest Limit Met)	Wednesday, January 14, 2026
Aug 22, 2025	May 31, 2026	H	2A, 2B, 2C, 3A, 3B, 3C	7	3	4	OPEN	
Aug 22, 2025	May 31, 2026	I	42, 44A	5	5	0	CLOSED (Harvest Limit Met)	Wednesday, February 25, 2026
Aug 22, 2025	May 31, 2026	J	21, 22, 23, 24A, 24B, 25M, 26M	54	56	0	CLOSED (Harvest Limit Met)	Wednesday, February 25, 2026
Aug 22, 2025	May 31, 2026	K	1, 27	28	29	0	CLOSED (Harvest Limit Met)	Wednesday, February 25, 2026
Aug 22, 2025	May 31, 2026	L	39, 41, 43A, 43B, 44B, 45A, 45B, 45C	3	1	2	OPEN	
Aug 22, 2025	May 31, 2026	M	28, 31, 32, 33, 37A, 37B, 38M	55	52	3	OPEN	
Aug 22, 2025	May 31, 2026	N	40A, 40B, 46A, 46B	4	0	4	OPEN	
Aug 22, 2025	May 31, 2026	P	29, 30A, 30B, 34A, 34B, 35A, 35B, 36A, 36B, 36C including FTHU	63	64	0	CLOSED (Harvest Limit Met)	Wednesday, March 11, 2026

EXHIBIT F

	Age Class																		
Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	unaged	Total	Aged	NoZeroTo	NoZeroAged
2004	5	18	14	11	3	7	2	1	1	0	0	0	0	0	0	60	122	62	117	57
2005	7	24	19	6	7	6	1	3	1	0	1	0	0	0	0	26	101	75	94	68
2006	6	24	16	10	10	7	6	1	2	0	0	2	1	0	0	28	113	85	107	79
2007	4	17	27	9	9	14	2	3	1	3	2	2	1	0	1	14	109	95	105	91
2008	4	14	16	22	15	13	9	4	2	2	1	1	0	0	0	17	120	103	116	99
2009	3	17	11	21	8	5	5	3	1	2	0	2	0	0	1	17	96	79	93	76
2010	1	19	22	17	5	6	7	2	3	2	0	1	1	0	0	13	99	86	98	85
2011	4	18	28	18	12	7	5	2	3	2	1	0	0	0	0	25	125	100	121	96
2012	4	23	26	8	14	5	8	1	3	0	2	0	0	0	0	13	107	94	103	90
2013	6	29	25	17	11	12	3	5	2	1	3	0	0	1	0	23	138	115	132	109
2014	1	24	26	16	10	6	2	3	4	2	2	0	0	0	1	20	117	97	116	96
2015	9	32	27	19	14	4	7	7	3	1	0	3	0	0	0	26	152	126	143	117
2016	15	35	38	18	11	11	8	2	4	1	0	1	0	0	0	12	156	144	141	129
2017	4	30	38	14	9	2	8	1	2	1	0	0	0	0	0	18	127	109	123	105
2018	6	35	30	20	14	7	2	2	1	0	1	0	0	0	0	17	135	118	129	112
2019	5	37	36	24	10	5	2	1	2	0	0	0	0	0	0	15	137	122	132	117
2020	2	33	38	15	8	3	3	1	2	2	0	0	0	1	0	14	122	108	120	106
2021	3	27	29	19	7	5	2	1	0	0	1	0	0	0	0	12	106	94	103	91
2022	6	33	23	6	1	8	2	2	1	0	0	0	0	0	0	13	95	82	89	76
2023	1	28	32	16	9	9	3	3	1	0	2	0	0	0	0	11	115	104	114	103
2024	2	27	28	11	2	2	9	4	2	1	1	1	0	0	0	33	123	90	121	88

EXHIBIT G

Arizona Mountain Lion Status Report

April L. Howard, Predator, Furbearer and Large Carnivore Biologist, Arizona Game and Fish Department

NOTEWORTHY MANAGEMENT TOPICS

A few noteworthy changes were made to the management strategy in Arizona since the 2017 Mountain Lion Workshop. Beginning with the 2018-2019 season, the Arizona Game and Fish Department made the following changes to mountain lion management:

- Instituted a summer season closure
- Removed multiple bag limits and daylong hunting hours in the few units where they occurred
- Implemented management zones which consist of one or more biologically similar game management units
- Established harvest thresholds for each mountain lion management zone
- Decreased adult female harvest threshold from 35% to 25%

The Arizona Game and Fish Department now uses statistical population reconstruction, which uses age-at-harvest data, estimates of harvest and non-harvest mortality from collared mountain lions in Arizona, and hunter effort, to estimate mountain lion abundance for each zone and then applies a 14% harvest rate to determine the harvest threshold. When a harvest threshold is reached in a management zone, that zone closes to mountain lion hunting for the remainder of the season. The use of zones considers dispersal and the large home range sizes of mountain lions in Arizona and should allow for better management of regional mountain lion populations. Population trends and indicators are used to monitor harvest in each management zone annually and harvest thresholds are adjusted accordingly. These parameters include the proportion of adult females in the harvest, proportion of all females in the harvest, trend in harvest, and trend in annual population estimates. If the 3-year mean adult female harvest exceeds 25% for a management zone, the harvest threshold is reduced or the length of the season is shortened for that management zone. More recently, additional guidelines were established in regards to female mountain lions. Adult female mountain lion is now defined as a female ≥3 years of age plus any female under the age of 3 that shows evidence of past nursing. If the 3-year mean total female (all ages) harvest exceeds 50% of the total mountain lion harvest for the management zone, a female (all ages) harvest threshold is established in conjunction with the total harvest threshold for that management zone.

RESEARCH UPDATE

To improve our statistical population reconstruction model, in 2020, the department embarked on a 5-year survival and cause-specific mortality study of mountain lions across the state. Although the sample size of radio-telemetered mountain lions (n=89) in our survival analysis was adequate, studies were concentrated in 3 areas of the state without adequate representation of each region or mountain lion management zone. Auxiliary studies should have the same relevant spatial dimensions as the population reconstruction (Skalski et al. 2011). Non-representative sampling of the survival and/or harvest process can bias overall reconstruction results (Skalski et al. 2011). Although precision of demographic estimates

is generally not considered in traditional models of population reconstruction (Millspaugh et al. 2009), the precision of auxiliary data ultimately affects the results of SPR (Clawson et al. 2013). The precision of population reconstruction estimates improves roughly proportional to the improvement in precision of auxiliary studies (Clawson et al. 2013). Therefore, our estimates should be improved by the incorporation of additional auxiliary survival data collected at the same spatial extent as our intended area of inference - statewide.

LITERATURE CITED

Clawson, M. V., J. R. Skalski, and J. J. Millspaugh. 2013. The utility of auxiliary data in statistical population reconstruction. Wildlife Biology 19:147–155.

Millspaugh, J. J., J. R. Skalski, R. L. Townsend, D. R. Diefenbach, M. S. Boyce, L. P. Hansen, and K. M. Kammermeyer. 2009. An evaluation of the sex-age-kill (SAK) model performance. Journal of Wildlife Management 73:442-451.

Skalski, J. R., J. J. Millspaugh, M. V. Clawson, J. L. Belant, D. R. Etter, B. J. Frawley, and P. D. Friedrich. 2011. Abundance trends of American martens in Michigan based on statistical population reconstruction. Journal of Wildlife Management 75:1767–1773.

EXHIBIT H

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IN THE SUPERIOR COURT OF THE STATE OF ARIZONA
IN AND FOR THE COUNTY OF MARICOPA

CENTER FOR BIOLOGICAL DIVERSITY, ROBIN SILVER, Plaintiffs, vs. ARIZONA GAME AND FISH COMMISSION; ARIZONA GAME AND FISH DEPARTMENT; TOM FINLEY, in his capacity as Director of the ARIZONA GAME AND FISH DEPARTMENT; Defendants.	Case No. **DECLARATION OF JAMES G. SANDERSON** Assigned to:

I, James G. Sanderson, Ph.D., pursuant to Arizona Rule of Civil Procedure 80(c), declare, under penalty of perjury, that the following is true and correct:

1. I have personal knowledge of the facts stated herein, and if called upon, I could and would testify competently to them.

2. I reside in Corrales, New Mexico.

3. I received my Ph.D. in mathematics and was employed at Los Alamos

National Laboratory from 1976-1997. My job was to translate high energy physics problems into mathematics and then write computer code to solve the physics problems.

4. I resigned from Los Alamos to pursue a career in the conservation of small wild cats. I completed all requirements for a Ph.D. from the University of Florida, Department of Wildlife Ecology and Conservation.

5. I was employed by Conservation International from 2000-2008. My job was to establish a global wildlife monitoring network. I worked exclusively outside the USA.

6. In 2004 I founded the not-for-profit Small Wild Cat Conservation Foundation, 501(c)3 EIN-26-1368021. The mission is to save all 33 species of small wild cats around the world by working with local partners to actively mitigate threats to small wild cats.

7. I continue to act as the director of the Small Wild Cat Conservation Foundation.

8. In 2004, I became a partner of the newly founded Wildlife Conservation Network with headquarters in California. I remain a partner.

9. I currently work around the world with my local colleagues to actively mitigate threats to small wild cats no matter where they occur.

10. My global partners use trail cameras to assess the effectiveness of our threat mitigation actions. To analyze millions of trail camera pictures, I wrote computer programs to aid in sorting, curating, and analyzing trail camera pictures. CameraSweet, a collection of all the programs (applications), is available free online on the Small Wild Cat Conservation Foundation website smallcats.org.

11. I continue to use my Ph.D. in mathematics and computing skills to write software to solve complex problems to better conserve wild cats.

12. I am the author and/or co-author of five books and have published more than 150 peer-reviewed scientific papers.

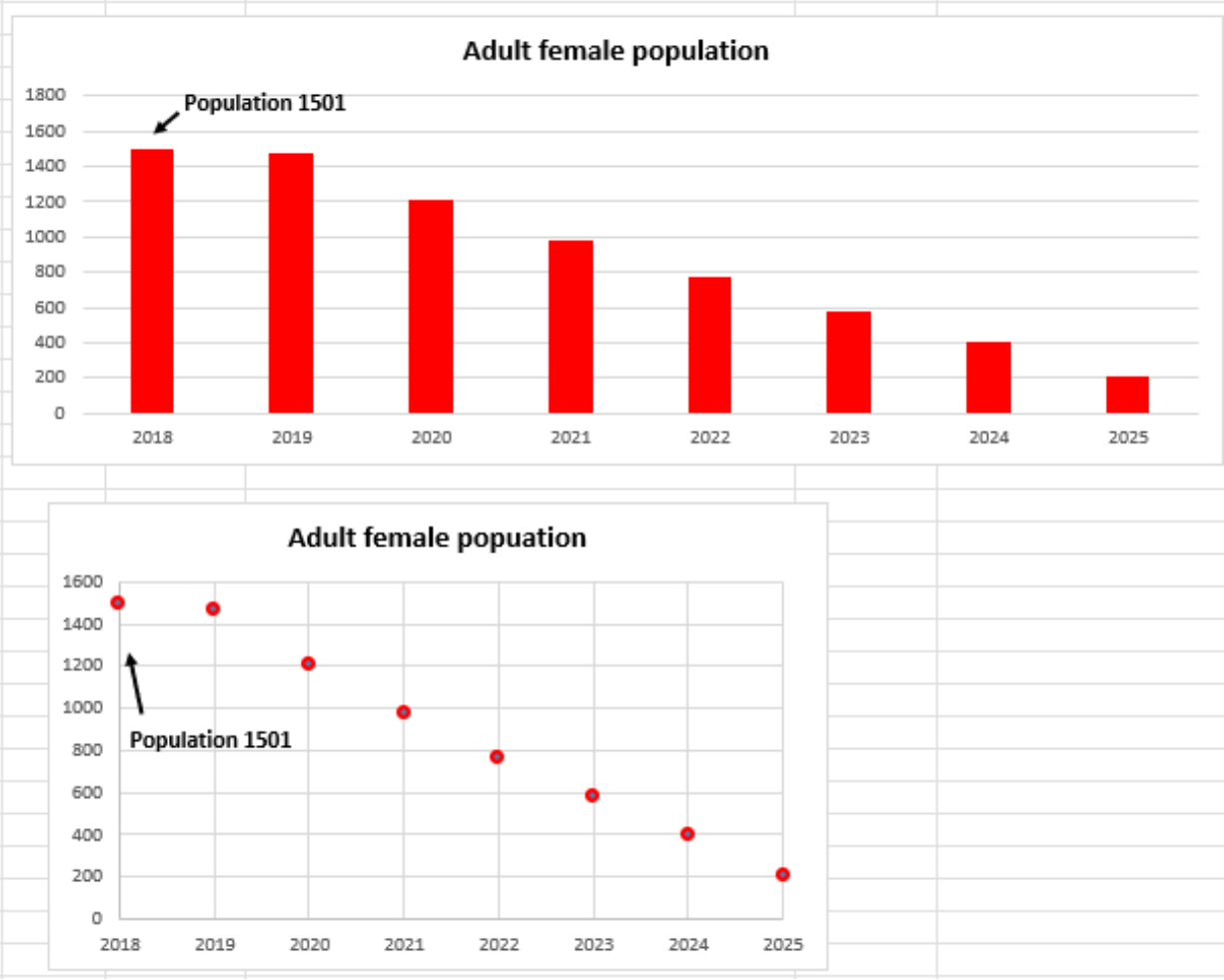
13. The Excel model I wrote to predict the Mountain lion population in Arizona is based upon a well-known, long accepted Leslie model published in 1945 (Leslie, P. H. 1945. On the use of matrices in certain population mathematics. *Biometrika* 33: 183–212.). The Leslie model is a discrete, age-structured mathematical model used in population ecology to project how a population will grow and change over time. It is designed to track survival and reproduction (fecundity) across distinct age classes. The model typically tracks only females. The model has only two parameters and holds true for all animals: (1) survival from one age class to the next and (2) reproductive output. Because of the model's simplicity, no improvements have been made to Leslie's model since its publication.

14. Because the Leslie Model uses life-history parameters widely used to model Mountain lion populations and also uses Arizona state supplied hunting kill by age group data, I believe the Leslie model faithfully predicts into the future the Mountain lion population in Arizona.

15. The Leslie Model outcome is conservative for two reasons. (1) The model uses only age-related killed Mountain lions while ignoring additional unaged-killed Mountain lions, and (2) also ignores those kittens that die as a result of their mother being killed by hunters (that was shown in Colorado to be a substantial number).

16. To better understand random impacts to a Mountain lion population, I wrote a so-called Individual-Based Model that follows each individual female Mountain lion from birth until death. A monthly timestep is used, and rather than a fixed survival probability, survival varies slightly around the fixed probability. The same is true for reproductive output.

17. My modeling is attached hereto, including the following:



18. The model shows what is already well known: Small populations are more prone to extinction than larger populations.

19. The model shows that AGFD's mountain lion sports hunting management is killing too many kittens, pre-reproductive juveniles, and adult females to sustain a viable mountain lion population in Arizona.

20. I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.

Executed at Corrales, New Mexico this 7th day of August 2026.

James G. Sanderson. Ph.D.
James G. Sanderson, Ph.D.

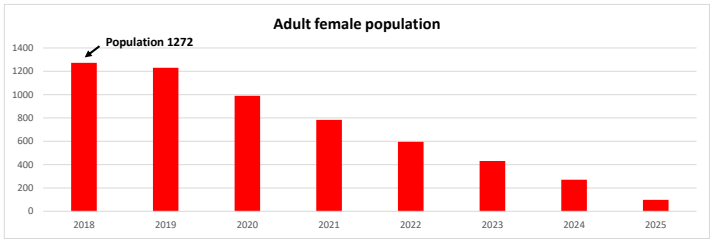
Max age of females	10
Number of cubs	2.5
Sex ratio of cubs	0.50
Cub survival	0.1900

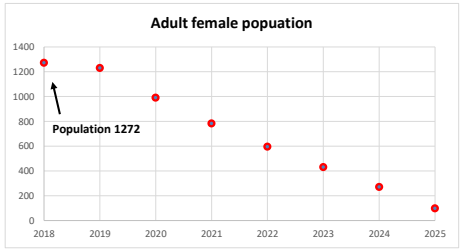
Full population growth model assuming 10 age classes with variable age-class survival & fecundity; sex ratio of cubs, and cub survival. Orange numbers can be varied. Logan 2020 from Colorado recorded litter sizes (reference period = 2.8, 95% CI = 2.4–3.1; treatment period = 2.4, 95% CI = 2.0–2.8). Fecundity = 0.48 from Logan 2020. Survival after one year derived from 2018 -2025 aged & unaged killed data (Survival worksheet). With no hunting, kitten survival 0.58 yields a growth rate of 1.000 (stability). With hunting, kitten survi val must be 0.44 to have a stable population. Note that with hunting, Logan 2020 showed kitten survival was 0.14 (the example shown below), well below 0.58 tha t results in a stable population.

From -> to age class	1-> 2	2->3	3->4	4->5	5->6	6->7	7->8	8->9	9->10	10->11	11->12	12->13	13->14	14->15
Survival	0.9500	0.9000	0.8600	0.8200	0.7700	0.7500	0.7000	0.6500	0.6000	0.5500	0.5200	0.00	0.00	0.00
Fecundity	0.00	0.48	0.48	0.48	0.48	0.48	0.48	0.60	0.48	0.00	0.00	0.00	0.00	0.00
Growth rate	0.5037													
	Shrink													

2018 population	340	306	263	216	166	125	87	57	34	19	1272		
Subtract AZ kill data	40	34	23	16	8	2	2	1	0	1	127	Subtract	
Surviving	300	272	240	200	158	123	85	56	34	18	1185	Surviving	93.2%
Year 1 number of Kittens		31	27	23	18	14	10	8	4	0	135	Kittens	
2019 population	135	285	245	207	164	122	92	60	36	20	1230		
Subtract AZ kill data	42	40	27	11	6	2	1	2	0	0	131	Subtract	
Surviving	93	245	218	196	158	120	91	58	36	20	1141	Surviving	89.7%
Year 2 number of Kittens		28	25	22	18	14	10	8	4	0	129	Kittens	
2020 population	129	88	221	187	160	122	90	64	37	22	990		
Subtract AZ kill data	37	43	17	9	3	3	1	2	2	0	117	Subtract	
Surviving	92	45	204	178	157	119	89	62	35	22	910	Surviving	71.6%
Year 3 number of Kittens		5	23	20	18	14	10	9	4	0	103	Kittens	
2021 population	103	88	41	175	146	121	89	62	40	21	783		
Subtract AZ kill data	30	33	21	8	6	2	1	0	0	1	102	Subtract	
Surviving	73	55	20	167	140	119	88	62	40	20	711	Surviving	55.9%
Year 4 number of Kittens		6	2	19	16	14	10	9	5	0	81	Kittens	
2022 population	81	69	49	17	137	108	89	62	40	24	596		
Subtract AZ kill data	38	27	7	1	9	2	2	1	0	0	87	Subtract	
Surviving	43	42	42	16	128	106	87	61	40	24	547	Surviving	43.0%
Year 5 number of Kittens		5	5	2	15	12	10	9	5	0	61	Kittens	
2023 population	61	40	38	36	13	99	79	61	39	24	431		
Subtract AZ kill data	30	33	21	8	6	2	1	0	0	1	102	Subtract	
Surviving	31	7	17	28	7	97	78	61	39	23	359	Surviving	28.2%
Year 6 number of Kittens		1	2	3	1	11	9	9	4	0	40	Kittens	
2024 population	40	30	7	15	23	5	72	55	40	24	271		
Subtract AZ kill data	37	38	15	3	3	12	5	3	1	1	118	Subtract	
Surviving	3	-8	-8	12	20	-7	67	52	39	23	190	Surviving	14.9%
Year 7 number of Kittens		-1	-1	1	2	-1	8	7	4	0	21	Kittens	
2025 population	21	3	-7	-6	-5	16	-5	47	34	23	99		
Subtract AZ kill data	4	6	2	5	4	2	2	0	0	0	25	Subtract	
Survivng	17	-3	-9	-11	-9	14	-7	47	34	23	78	Surviving	6.1%

Year	Adult female popuation	% of year 0	Rate
2018	1272	100%	0.000
2019	1230	97%	-0.033
2020	990	78%	-0.195
2021	783	62%	-0.209
2022	596	47%	-0.239
2023	431	34%	-0.277
2024	271	21%	-0.372
2025	99	8%	-0.635

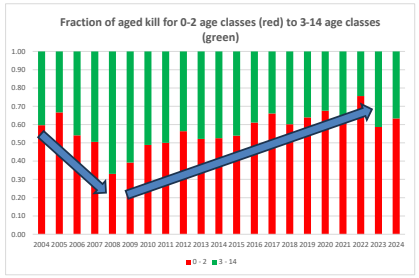




Year / Age class	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total	Unaged	Unaged % of total aged
2004	5	18	14	11	3	7	2	1	1	0	0	0	0	0	0	62	60	96.8%
2005	7	24	19	6	7	6	1	3	1	0	1	0	0	0	0	75	26	34.7%
2006	6	24	16	10	10	7	6	1	2	0	0	2	1	0	0	85	28	32.9%
2007	4	17	27	9	9	14	2	3	1	3	2	2	1	0	1	95	14	14.7%
2008	4	14	16	22	15	13	9	4	2	2	1	1	0	0	0	103	17	16.5%
2009	3	17	11	21	8	5	5	3	1	2	0	2	0	0	1	79	17	21.5%
2010	1	19	22	17	5	6	7	2	3	2	0	1	1	0	0	86	13	15.1%
2011	4	18	28	18	12	7	5	2	3	2	1	0	0	0	0	100	25	25.0%
2012	4	23	26	8	14	5	8	1	3	0	2	0	0	0	0	94	13	13.8%
2013	6	29	25	17	11	12	3	5	2	1	3	0	0	1	0	115	23	20.0%
2014	1	24	26	16	10	6	2	3	4	2	2	0	0	0	1	97	20	20.6%
2015	9	32	27	19	14	4	7	7	3	1	0	3	0	0	0	126	26	20.6%
2016	15	35	38	18	11	11	8	2	4	1	0	1	0	0	0	144	12	8.3%
2017	4	30	38	14	9	2	8	1	2	1	0	0	0	0	0	109	18	16.5%
2018	6	35	30	20	14	7	2	2	1	0	1	0	0	0	0	118	17	14.4%
2019	5	37	36	24	10	5	2	1	2	0	0	0	0	0	0	122	15	12.3%
2020	2	33	38	15	8	3	3	1	2	2	0	0	0	1	0	108	14	13.0%
2021	3	27	29	19	7	5	2	1	0	0	1	0	0	0	0	94	12	12.8%
2022	6	33	23	6	1	8	2	2	1	0	0	0	0	0	0	82	13	15.9%
2023	1	28	32	16	9	9	3	3	1	0	2	0	0	0	0	104	11	10.6%
2024	2	27	28	11	2	2	9	4	2	1	1	1	0	0	0	90	33	36.7%

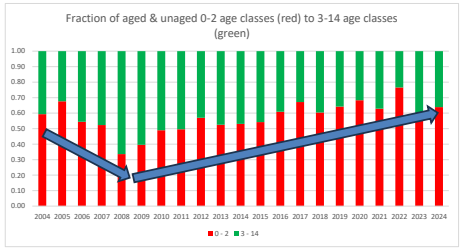
Year / Age & unaged class	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total	Check
2004	10	35	28	22	6	14	4	2	2	0	0	0	0	0	0	123	-1
2005	9	32	26	8	9	8	1	4	1	0	1	0	0	0	0	99	2
2006	8	32	21	13	13	9	8	1	3	0	0	3	1	0	0	112	1
2007	5	20	31	10	10	16	2	3	1	3	2	2	1	0	1	107	2
2008	5	16	19	26	17	15	10	5	2	2	1	1	0	0	0	119	1
2009	4	21	13	26	10	6	6	4	1	2	0	2	0	0	1	96	0
2010	1	22	25	20	6	7	8	2	3	2	0	1	1	0	0	98	1
2011	5	23	35	23	15	9	6	3	4	3	1	0	0	0	0	127	-2
2012	5	26	30	9	16	6	9	1	3	0	2	0	0	0	0	107	0
2013	7	35	30	20	13	14	4	6	2	1	4	0	0	1	0	137	1
2014	1	29	31	19	12	7	2	4	5	2	2	0	0	0	1	115	2
2015	11	39	33	23	17	5	8	8	4	1	0	4	0	0	0	153	-1
2016	16	38	41	20	12	12	9	2	4	1	0	1	0	0	0	156	0
2017	5	35	44	16	10	2	9	1	2	1	0	0	0	0	0	125	2
2018	7	40	34	23	16	8	2	2	1	0	1	0	0	0	0	134	1
2019	6	42	40	27	11	6	2	1	2	0	0	0	0	0	0	137	0
2020	2	37	43	17	9	3	3	1	2	2	0	0	0	1	0	120	2
2021	3	30	33	21	8	6	2	1	0	0	1	0	0	0	0	105	1
2022	7	38	27	7	1	9	2	2	1	0	0	0	0	0	0	94	1
2023	1	31	35	18	10	10	3	3	1	0	2	0	0	0	0	114	1
2024	3	37	38	15	3	3	12	5	3	1	1	1	0	0	0	122	1
																	15

Year / Age class	0 - 2	3 - 14
2004	0.60	0.40
2005	0.67	0.33
2006	0.54	0.46
2007	0.51	0.49
2008	0.33	0.67
2009	0.39	0.61
2010	0.49	0.51
2011	0.50	0.50
2012	0.56	0.44
2013	0.52	0.48
2014	0.53	0.47
2015	0.54	0.46
2016	0.61	0.39
2017	0.66	0.34
2018	0.60	0.40
2019	0.64	0.36
2020	0.68	0.32
2021	0.63	0.37
2022	0.76	0.24
2023	0.59	0.41
2024	0.63	0.37



	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
2024	3	37	38	15	3	3	12	5	3	1	1	1	0	0	0	122
	0.02459	0.303279	0.311475	0.122951	0.02459	0.02459	0.098361	0.040984	0.02459	0.008197	0.008197	0.008197	0	0	0	

Year / Age & unaged class	0 - 2	3 - 14
2004	0.59	0.41
2005	0.68	0.32
2006	0.54	0.46
2007	0.52	0.48
2008	0.34	0.66
2009	0.40	0.60
2010	0.49	0.51
2011	0.50	0.50
2012	0.57	0.43
2013	0.53	0.47
2014	0.53	0.47
2015	0.54	0.46
2016	0.61	0.39
2017	0.67	0.33
2018	0.60	0.40
2019	0.64	0.36
2020	0.68	0.32
2021	0.63	0.37
2022	0.77	0.23
2023	0.59	0.41
2024	0.64	0.36



Year / Age & unaged class	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
2018	7	40	34	23	16	8	2	2	1	0	1	0	0	0	0	134
2019	6	42	40	27	11	6	2	1	2	0	0	0	0	0	0	137
2020	2	37	43	17	9	3	3	1	2	2	0	0	0	1	0	120
2021	3	30	33	21	8	6	2	1	0	0	1	0	0	0	0	105
2022	7	38	27	7	1	9	2	2	1	0	0	0	0	0	0	94
2023	1	31	35	18	10	10	3	3	1	0	2	0	0	0	0	114
2024	3	37	38	15	3	3	12	5	3	1	1	1	0	0	0	122
2025 (not used)	2	12	16	7	13	11	6	5	0	0	0	0	0	0	0	72
Total	**31**	**267**	**266**	**135**	**71**	**56**	**32**	**20**	**10**	**3**	**5**	**1**	**0**	**1**	**0**	**898**
															867	

Age class >=1 year	N	N*	Survival	Trend
1	255	255	1.0000	0.95
2	250	250	0.9804	0.90
3	128	128	0.5120	0.86
4	58	58	0.4531	0.82
5	45	45	0.7759	0.77
6	26	26	0.5778	0.75
7	15	15	0.5769	0.70
8	10	10	0.6667	0.65
9	10	10	1.0000	0.60
10	3	5	0.5000	0.55
11	5	3	0.6000	0.52
12	1	1	0.3333	0.48
13	0	1	1.0000	0.44
14	1	0	0.0000	0.40
	807	**807**		

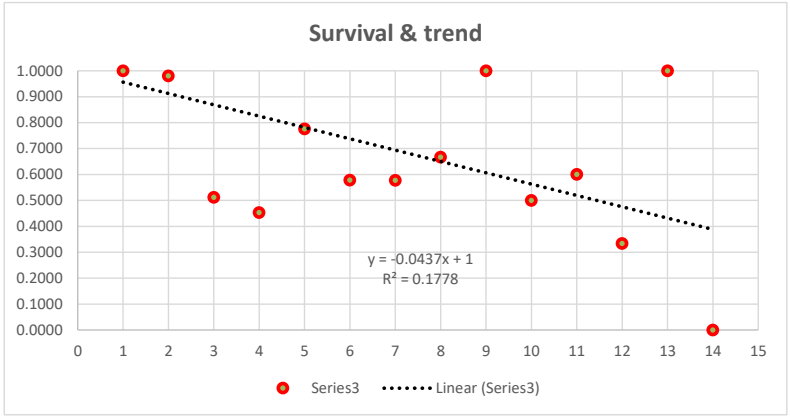


EXHIBIT I

Is hunting of North American puma in Arizona sustainable?

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June 18, 2026

Introduction

The Arizona Game and Fish Department (AGFD) permits the hunting of mountain lions and reports hunt data for areas within the state's jurisdiction, which includes federal BLM and US Forest Service lands, but not tribal lands. No information seems to be readily available from tribal agencies on the level of take on tribal lands (Fig 1).[1]

I have been asked by the Center for Biological Diversity to review available key information about puma demography in Arizona with a view to assessing if sport hunting permitted by AGFD can be considered sustainable or not and to what extent can it be justified.

The common name puma is preferred here to mountain lion.

Statistical population reconstruction

Howard et al 2020[2] used statistical population reconstruction (SPR) for pumas in Arizona using:-

1. Age specific harvest data for the period 2004–2018
2. Tag (permit) purchases as an index of hunting effort
3. Known fates of 89 GPS tagged individuals (over 1 year old)
4. Kitten mortality estimates from Colorado[3]

Those authors noted that it is not possible to estimate abundance from harvest data alone since there are no independent measures which might allow determination of the fraction of the population that is being harvested. It's like trying to solve for two unknowns in just one equation.

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[1] San Carlos Apache Reservation https://www.sancarlosrecreationwildlife.com/activities/cougar/
Hualapai and White Mountain Apache Reservations appear to require non tribal hunters to use tribe approved outfitters
Navajo Nation current hunting proclamation allows unlimited permits in all 16 game units
https://www.nndfw.org/docs/2025_26proclamation_lion.pdf
Hopi current proclamation only mentions elk and deer https://www.hopi-nsn.gov/wp-content/uploads/2025/08/Hopi-Hunt-Proclamation-25-FINAL.pdf

[2] Howard, A.L., Clement, M.J., Peck, F.R. and Rubin, E.S., 2020. Estimating mountain lion abundance in Arizona using statistical population reconstruction. *The Journal of Wildlife Management,* 84(1), pp.85-95.

[3] Logan, K. A., and J. P. Runge. 2020. *Effects of hunting on a puma population in Colorado*. Technical Publication No. 54, Colorado Parks and Wildlife

They reported an average of annual population sizes (excluding tribal areas) predicted in the best fitting model of 2,845 including kittens, with very wide confidence limits and 1,364 excluding kittens with a narrower CI. Authors did not find any predicted temporal trend in either estimate of annual population size.

AGFD appears to rely on this analysis, and reports a statewide stable population of 3000 (presumably including kittens but also excluding tribal lands).[4]

SPR was developed to make use of harvest data in light of the difficulty of otherwise detecting elusive pumas so as to estimate abundance.

However having an independent check on population size is vital to ensure that harvest as a fraction of population is not driving survival below that needed for natural replacement.

Fukasawa et al (2020) examined harvest data driven SPR in simulations and reported that it can produce significant bias. They stressed the importance of independent estimators/ indices of population abundance.[5]

Mark-release-recapture estimates of population size

SPR based on harvest data could be avoided more readily now, because the classic method of mark-release-recapture to estimate population size has become much more feasible for elusive animals with the advent of cheap and abundant wildlife camera traps resulting in much more feasible resighting effort at scale for identifiable individuals.

Murphy et al (2019)[6] report modelled densities of 0.84–1.65 per 100 km^2 for pumas in mountainous habitat in central New Mexico based on camera trap resightings of marked adults.

Applying this to the estimated area of puma habitat in AZ of 213,863 km^2 [7] gives a predicted AZ adult population size between 1,796 and 3,528 which is greater than the annual average from Howard et al quoted above. If we apply the densities to just those GMUs with significant harvest and therefore significant populations (Areas >3 in Fig 1, a total of 79,741km^2), we get a much lower range of adult population sizes: 670-1316, the upper end of which is closer to the prediction of Howard et al (2020).

This example highlights the risks of applying a single density estimate to large areas encompassing such a wide spectrum of habitat qualities. Spatial segregation or zonation by habitat quality and estimation of zone specific densities using recapture/ resighting methodology is a much more appropriate and accurate way to extrapolate population sizes.

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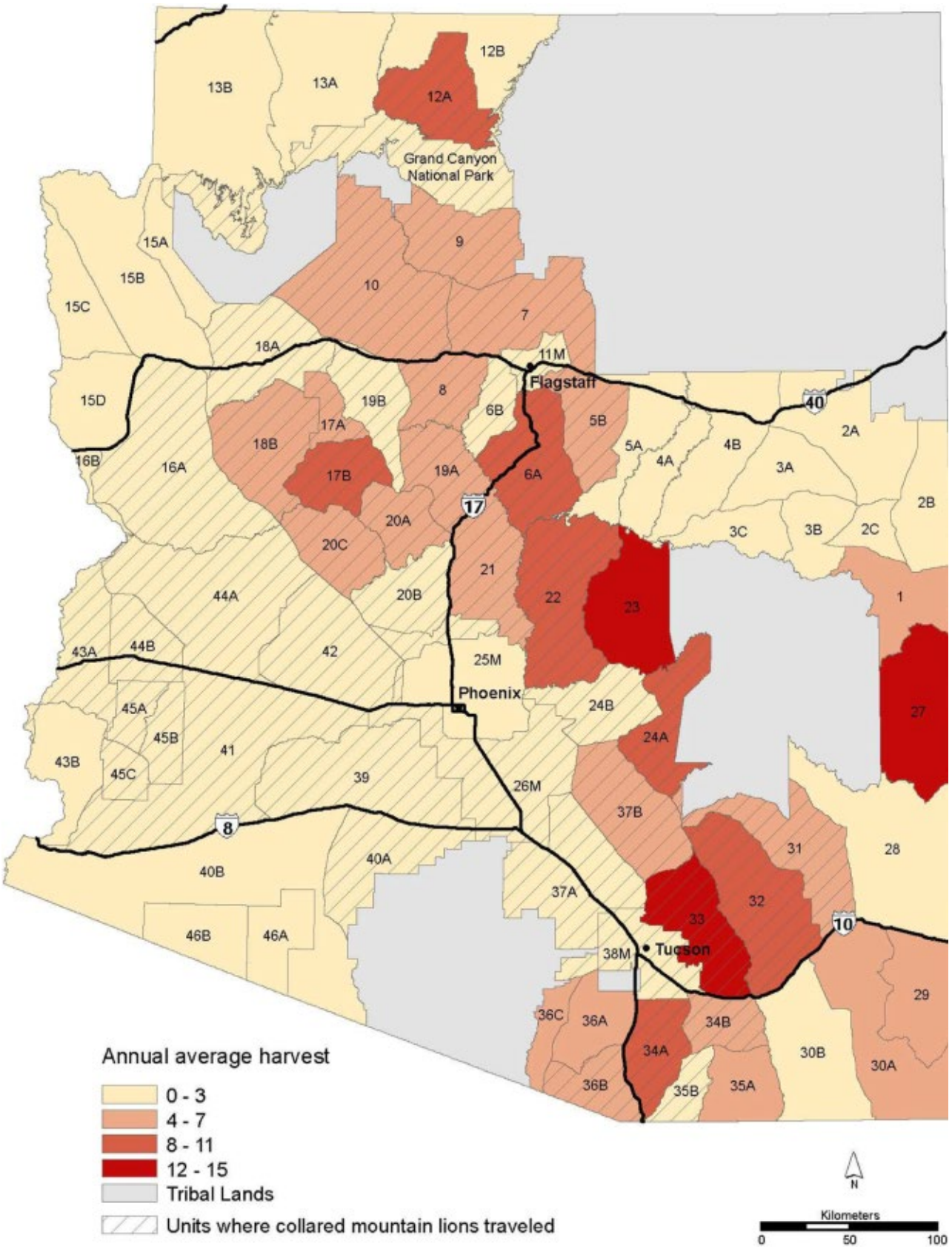
[4] https://www.azgfd.com/species/mountain-lion/

[5] Fukasawa, K., Osada, Y. and Iijima, H., 2020. Is harvest size a valid indirect measure of abundance for evaluating the population size of game animals using harvest-based estimation?. *Wildlife Biology*, 2020(4), pp.1-7.

[6] Murphy, S.M., Wilckens, D.T., Augustine, B.C., Peyton, M.A. and Harper, G.C., 2019. Improving estimation of puma (*Puma concolor*) population density: clustered camera-trapping, telemetry data, and generalized spatial mark-resight models. Scientific reports, 9(1), p.4590.

[7] Out of a whole state area of 295,254 km^2 of which 214,819 km^2 is the area outside of tribal lands. Taken from supplementary information in Laundré JW, Papouchis C (2020) The Elephant in the room: What can we learn from California regarding the use of sport hunting of pumas (*Puma concolor*) as a management tool?. *PLOS ONE* 15(2): e0224638. https://doi.org/10.1371/journal.pone.0224638 in turn taken from Dickson BG, Roemer GW, McRae BH, Rundall JM (2013) Models of Regional Habitat Quality and Connectivity for Pumas (*Puma concolor*) in the Southwestern United States. *PLoS ONE* 8(12): e81898. doi:10.1371/journal.pone.0081898



"Figure 1. Annual average mountain lion hunter harvest by units in Arizona, USA, 2004–2018, and units where mountain lion telemetry data were collected, 2003–2017." Reproduced from Howard et al (2020).[8]

[8] Howard, A.L., Clement, M.J., Peck, F.R. and Rubin, E.S., 2020. Estimating mountain lion abundance in Arizona using statistical population reconstruction. *The Journal of Wildlife Management,* 84(1), pp.85-95.

Harvest as % of population size probably unsustainable

If we accept the population estimates and the known harvest rates from Howard et al 2020, could the harvest as a percentage of total population lie in a range shown in independent work to be sustainable?

From Howard et al (2020, Table 4), removing 0-1 aged (kitten) kills and imputed unaged 0-1 kills,[9] there is an average of 253 adults and subadults logged as sport killed annually in the AGFD jurisdiction over the entire 2004-2024 record. Out of an average annual adult/subadult population those same authors estimate at 1,364, the annual kill represents 18.5% of the adult population being killed every year.

Empirical evidence suggests that such a high level of adult kill (on top of natural mortality) must result in population decline of mountain lions regardless that the authors' model predicts that it does not.

Logan & Runge (2020)[10] in a large experiment using known fates of collared individuals found that puma hunting in Colorado had the result that *"Abundance … declined 35% after 4 years of hunting with harvest rates averaging 15% annually."* Litter size and parturition rates also declined in the hunted population.

This highlights a paradox in the models put forward by Howard et al (2020). For the population to be stable under harvest either the population is actually much greater than they predict and thus the known percent take is relatively small; or their prediction of a steady population is simply incorrect. They cannot both be true unless there is immigration sufficient to keep the AGFD managed population afloat, coming from source populations on tribal lands or surrounding states like CA where sport hunts have been banned since 1972 and where estimated density of pumas is roughly three times that in AZ.[11]

Other indicators of unsustainable sport killing of pumas in Arizona

There are also indications of negative demographic impacts of hunting pressure from just the age-at-harvest data provided by AGFD.

There is a long term upward trend in total sport kills (Figs 2- 3) as well as a shift toward kills of younger pumas (Fig 4), over the 20 year record from 2004 to 2024 in data provided by the AGFD as an update to the figures in Howard et al 2020. An increasing proportion of younger game animal kills is a classic indicator of over harvest.

[9] applying the ratio of 0-1 aged kills to the total aged sample and calculating the number from the unaged count in that same age class assuming the ratio remains the same across all kills.

[10] Logan, K. A., and J. P. Runge. 2020. *Effects of hunting on a puma population in Colorado*. Technical Publication No. 54, Colorado Parks and Wildlife.

[11] Fig 2 in Laundré JW, Papouchis C (2020) The Elephant in the room: What can we learn from California regarding the use of sport hunting of pumas (Puma concolor) as a management tool?. PLOS ONE 15(2): e0224638. https://doi.org/10.1371/journal.pone.0224638

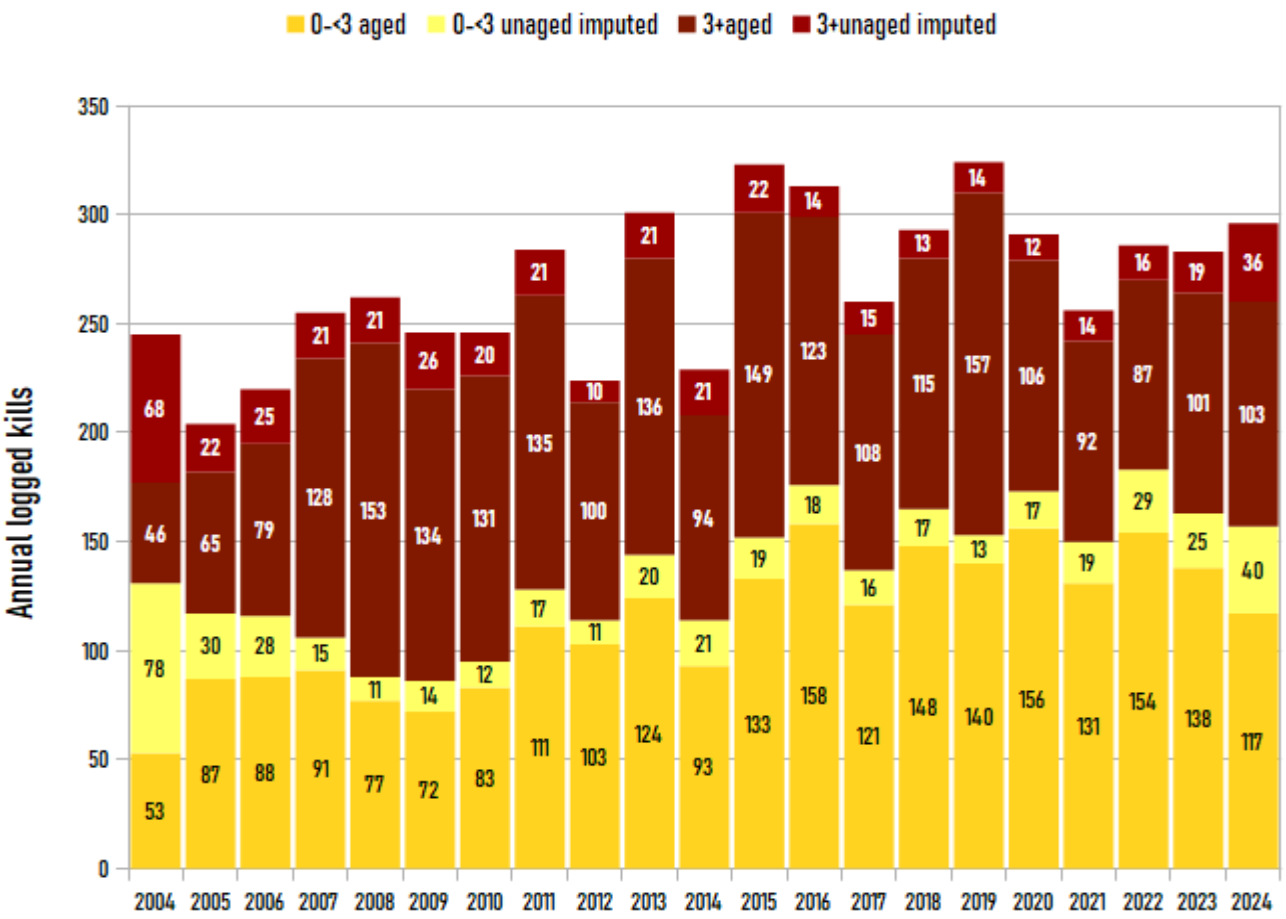


Fig. 2. Numbers of logged kills reported by AGFD by year in four age classes.

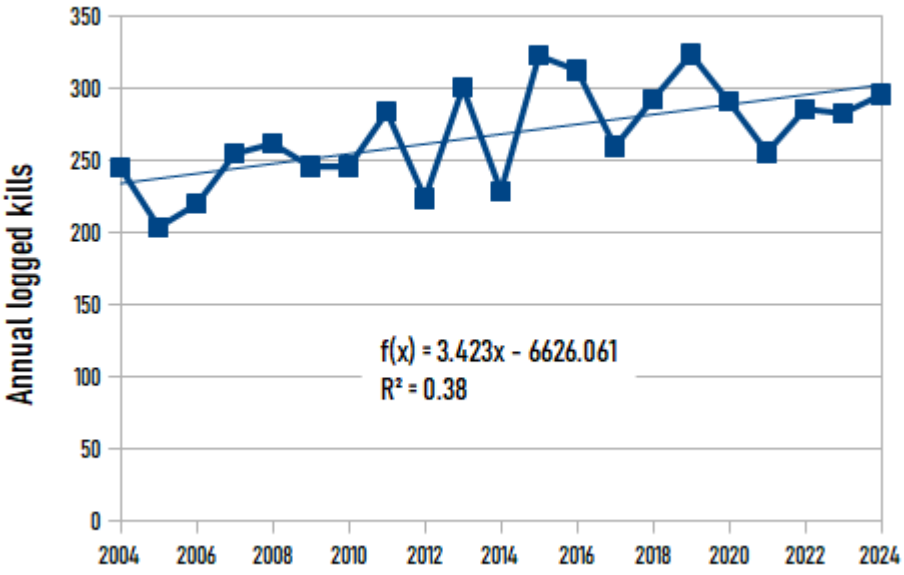


Fig 3 Annual total logged puma kills (AGFD data) show a positive regression on year over the 2004-2024 period (See figure 2 for numbers).

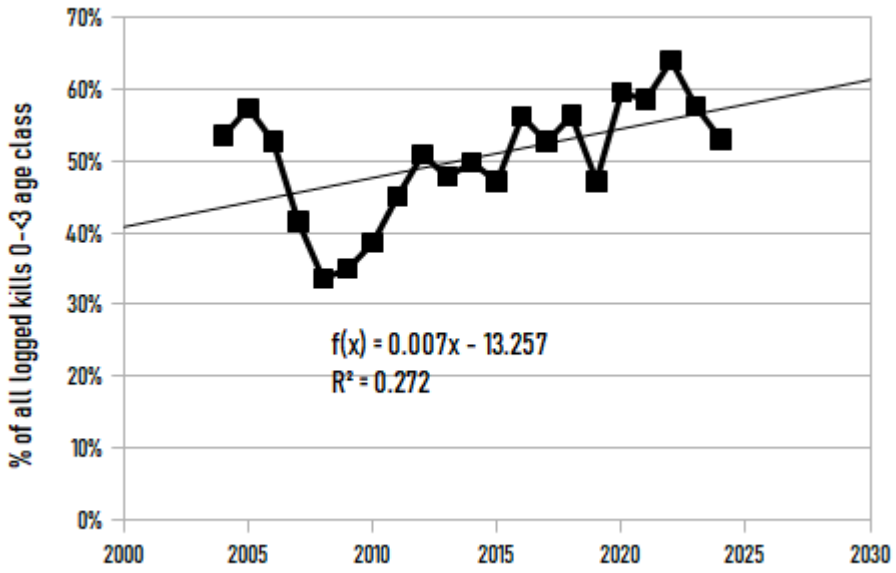


Fig. 4. Annual percent of all puma logged kills (AGFD data) in the 0-<3 age class (See figure 2 for numbers)

Numerus model of population dynamics

I independently collated available life table information and applied it to a Numerus[12] population simulation model. The parameters are shown in Appendix 1 with notes on sources. Numerus is a Leslie Matrix model with a maximum of 10 age classes and may include both demographic and environmental stochasticity as well as age and sex selective harvest.

A simulation with 50 iterations of the model over a 41 year time frame confirms that based on known life tables, if the average annual rate of logged kills of AZ pumas reported since 2018 were to be continued regardless of population size, populations would fall to functional extirpation in about 15 years in Arizona's non-tribal lands (Fig. 5 right). Further, even the most optimistic birth rate of 2.5-3 kittens per adult female and 100% of females breeding, combined with age-specific mortality rates estimated by Howard et al (2020) result in a population that population should still be in decline (Fig. 5 left).

The assumption of 2.5 litter size and 100% of females breeding we used in the model was unrealistic however, because in the most comprehensive study of puma demographics under hunting in Colorado, the average litter size was 2.4 but only 48% of adult females were breeding (i.e. producing litters) annually in the hunted population (Logan and Runge 2020).[13]

Note that this model ignores sources of human caused mortality other than natural mortality and sport hunting:- including management kills, depredation kills by ranchers and unreported kills.Note also that as for the Howard et al (2020) models, this result applies only with the Arizona population under AGFD jurisdiction, excluding tribal lands within Arizona. If the Howard et al (2020) prediction is true that the Arizona population is stable, it could only be due to immigration from surrounding source populations which is replacing killed animals.

The only way extirpation could be avoided if current levels of sport hunting were allowed to continue is if immigration is replacing individuals that have been killed.

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[12] https://pva-webapp.numerusinc.com/

[13] Logan, K. A., and J. P. Runge. 2020. *Effects of hunting on a puma population in Colorado*. Technical Publication No. 54, Colorado Parks and Wildlife.

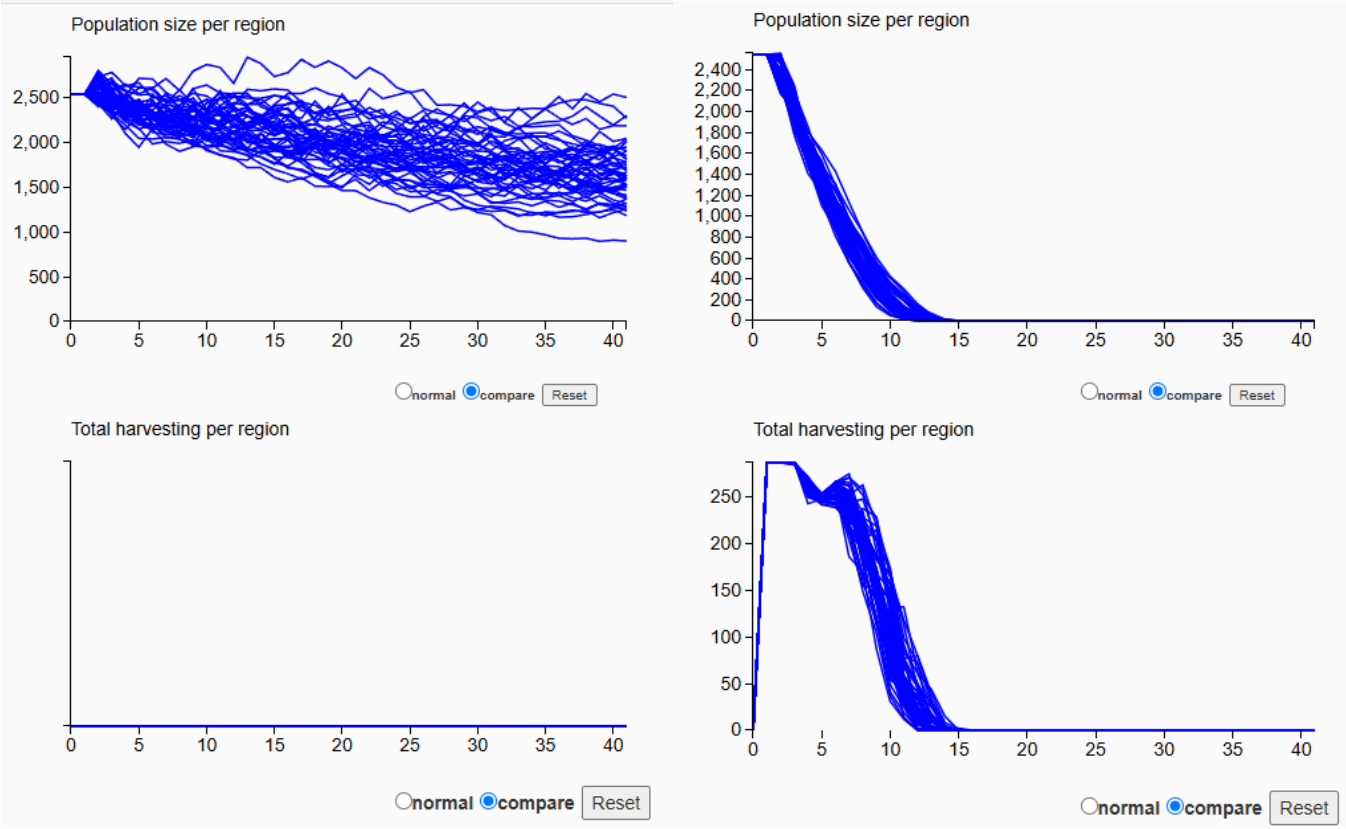

Fig 5. Population trajectories of two sets of 50 iterations of a *Numerus* simulation model of AZ puma single region population LEFT without hunting and RIGHT under current annual sport kill rates. See Appendix 1 for parameters. Note that due to model structure, harvest is not applied in year zero, only starting in year 1.

Justifications for sport hunting not supported

Laundré & Papouchis (2020)[14] compared relevant statistics for California, where mountain lion sport hunting (not including wildlife management kills) has been banned since 1972, with those for other western states where hunting continues, and found no support for the major justifications for hunting: namely, a presumed need to suppress puma populations, to reduce puma-human conflict in particular predation on domestic livestock, and to make more wild ungulates available to hunters, all purposes put forward by AGFD to justify sport hunting of mountain lions.[15]

The authors however did erroneously conclude that hunting does not suppress density comparing CA densities with the average of those densities provided by Game and Fish departments in other western states. They did not control for the richness of habitats differing among states.

It is notable that density for CA was estimated at almost three times that of AZ, which is around 1 animal per 100 km^2.[16]

[14] Laundré JW, Papouchis C (2020) The Elephant in the room: What can we learn from California regarding the use of sport hunting of pumas (Puma concolor) as a management tool?. PLOS ONE 15(2): e0224638. https://doi.org/10.1371/journal.pone.0224638

[15] https://www.azgfd.com/wildlife-conservation/the-need-for-wildlife-mangement/

[16] Laundré JW, Papouchis C (2020) Fig 2

Conclusions

- Annual logged puma kills have been in a long term upward trend in AZ according to AGFD data.
- The proportion of annual kills in the less than 3 year kitten and young adult class also shows an upward trend.
- The annual kill level in AZ (18%+) as a proportion of population exceed levels (15%) shown in an experiment in CO to result in a 35% population crash over four years.
- In the absence of immigration, current kill levels if continued would cause the Arizona population to crash to extirpation in about 15 years based on AGFD survivorship estimates (Howard et al, 2020) and optimistic birth rates of 2.5-3 kittens per adult female. Moreover at these birth and death rates, the population would slowly decline even without annual hunting.
- If the population is in fact stable, it is likely to be a result of immigration from neighbouring source populations with AZ acting as sink.
- Ongoing sport hunting is difficult to justify since the common justifications given have been shown to have little empirical support.

Appendix 1 Numerus simulation life table parameters

Parameters	Value	Notes/sources
Populations	1	
Timeframe (yrs)	41	
Initial population size	2542	Howard (2022)[17]; AGFD ANNUAL HARVEST LIMITS 2018-9
Extirpation defined as	0	
Density dependence	None	
Demographic stochasticity	Yes	
Environmental stochasticity	20%	
Reproductive System:		
Females youngest age breeding	3	https://sempervirens.org/news/the-life-and-times-of-pumas/
Females oldest age breeding	10	
Males youngest age breeding	3	
Males oldest age breeding	10	
Maximum age	10	Limit of model provided age classes
Sex ratio at birth:	50%	
Adult female annual birth rate	2.5	This is a highly optimistic estimate on average number of kittens per adult female in the population based on the Florida Panther study of Hostetler et al (2012). Logan and Runge (2020) in contrast found breeding females produced 2.4 kittens on average per litter, but only 48% of females were breeding annually in the hunted population.
Maximum annual birth rate	3	
Annual intrinsic survival rates		Howard et al (2020) p90 *"The natural survival rate was lower for kittens (0.341 ±0.067) and 1-year-old animals (0.591 ±0.309), and higher for 2-year-old animals (0.883 ±0.104), and all older animals (0.859 ±0.035)."*
Age 1:	34%	
Age 2	59%	
After 3 and up	86%	
Annual harvest		
Females		
Age 1	4	Numbers of individuals harvested annually using AGFD aged/sexed kills numbers for 2018-2024, averaged over that period, with unaged numbers added pro rata in the same ratio as unaged to total kills.
Age 2	36	
Age 3	35	
Age 4	18	
Age 5	8	
Age 6	6	
Age 7	4	
Age 8	2	
Age 9	1	
Age 10	2	

[17] Arizona Mountain Lion Status Report, April L. Howard, Arizona Game and Fish Department, April 4, 2022.

Males	
Age 1	3
Age 2	36
Age 3	46
Age 4	34
Age 5	23
Age 6	11
Age 7	8
Age 8	2
Age 9	2
Age 10	2

EXHIBIT J

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AZ Mountain Lion Analysis

Dr. Zachary Gelbaum

July 27, 2026

Abstract

We apply two different Leslie models, one standard and one with variable harvest rate, to assess the sustainability of current AGFD sport hunting quotas for mountain lions under various biological assumptions. The data on killed mountain lions as well as estimates for total mountain lion population in AZ come directly from AGFD, other parameter ranges and values are taken from the literature. By assuming an initial population in line with AGFD statements, we compute a range of parameter values, primarily fecundity, survival and kitten survival required for the current quotas to be sustainable and to avoid a severe decline. We find that sustainability of current hunting quotas requires vital parameters unlikely to be those that hold in reality.

Problem Statement

Arizona Game and Fish Department currently has a mountain lion sport hunting policy in place using a quota system. AGFD collects data on age, sex and total number of mountain lions killed under this regime. The Center for Biological Diversity requested independent modeling of available data to evaluate the sustainability of this hunting regime. In particular, AGFD claims that current numbers of mountain lions being killed by hunters, in particular females, is sustainable in that the total population of all mountain lions in AZ is stable and around 2,876 (see table below) and has remained such with the current quotas in place. To assess this statement, we take AGFD kill data and run various population models starting from an initial population given by AGFD to assess the likelihood of the population remaining stable over time.

The true total population of mountain lions in AZ is unknown, but as we are specifically evaluating the claims of AGFD we take their stated numbers as the assumed total population. Note that AGFD has claimed, either directly or in [3], total mountain lion populations of 2,000–3,000 going back over 20 years, with [3] estimating a 15-year average over 2004–2018 of 2,845.

Model

Since the AGFD kill data is by age, from 0 (kittens) to 14, an age-structured population model is appropriate and standard practice. Where a modeling choice was not settled by the data, we generally took the option more generous to a finding of sustainability, so as to cover as wide a range of scenarios as possible and to limit claims of bias in the results, with the exception being the unaged portion of the harvest is apportioned into the kill vector rather than dropped. Given that the findings below are still strongly negative towards sustainability, the generous choices strengthen the results of the analysis.

We run two different Leslie models: One standard and one with variable harvest rates where we let the population evolve over time. Below we initially discuss parameters common to both, and detail each setup in turn.

Table 1: Published AGFD mountain lion population figures for Arizona. Non-kitten figures denote subadult + adult; total figures include kittens. All Howard et al. (2020) [3] figures exclude Tribal lands (≈28% of the state).

N	Age class	Source
Peer-reviewed (AGFD authors) — Howard et al. 2020 [3]		
2,845	All ages	15-yr avg (2004–2018), excl. Tribal lands
2,741 (459–5,023)	All ages	Single-year (2017) estimate
1,848–4,661	All ages	Range of annual point estimates, 2004–2018
1,364	Non-kitten	15-yr avg (2004–2018)
1,470 (843–2,097)	Non-kitten	Single-year (2017) estimate
1,166–1,715	Non-kitten	Range of annual point estimates, 2004–2018
1,500–2,500	Not specified	Prior informal AGFD estimate (realism check)
Howard et al. 2020 sensitivity variants (alt. kitten survival)		
3,539	All ages	$S = 0.219$ (low alt.)
2,455	All ages	$S = 0.570$ (high alt.)
1,441	Non-kitten	$S = 0.219$ (low alt.)
1,349	Non-kitten	$S = 0.570$ (high alt.)
Agency management & public-facing figures		
2,876	Total	AGFD FAQ 2024 [1], avg 2004–2020
~3,000	Total	AGFD species page (live 2026)
2,500	Total	AGFD fact sheet 2017 (prior estimate)
2,000–2,700	Total	AGFD fact sheet 2017
2,500–3,000	Total	AGFD via UA Extension
1,000–2,500	Total, AGFD lands	AGFD 2003 estimate (via MLF)

Temporal Structure

The modeling advances in annual steps on a birth-pulse schedule [2]. We take the modeling year to begin at the start of the AGFD open season (the season opens August 22, which we round to a September 1 model-year start) so that each year's harvest and each year's recruitment occur in a fixed order within the step. This ordering is what makes the fecundity discount well-defined: harvest acts during the open season, and the census is taken immediately afterward, before the following summer's birth pulse [5].

Mountain lion reproduction is strongly seasonal, and its phase relative to the hunting season is what determines how much reproductive output is exposed to harvest. We have no Arizona data on reproductive timing; as with every vital rate, the timing is taken from Logan & Runge's (2020) [4] Colorado study and applied to Arizona. In their data, conceptions cluster December through June, peaking in April, and births cluster in July and August. Scored against the AGFD season the conceptions largely fall inside the open season and the births largely inside the closed season. On this ported timing, a female must survive the open season while carrying a litter for that litter to appear the following summer: a female harvested while carrying a season-conceived litter loses it, while a female harvested after parturition does not. The fraction of reproductive output so exposed is captured by β, the fecundity harvest-exposure fraction, which enters the harvested fecundity as $F \mapsto \tilde{F}_i = F(1 - \beta h_i)$ (see Matrix Parameters).

See the vital-rate transfer discussion in the Model Hypotheses section. Note also that AGFD's own abundance model draws on [4] for the analogous kitten-survival parameter

We compute β directly from the litter-timing record rather than treating it as a free parameter. Logan & Runge (2020) Table 12 gives the monthly conception and birth frequency of 66 observed litters; scored against the AGFD season by `fecundity_harvest_fraction` as the conception-frequency-weighted share of open-season months, 62 of the 66 litters fall in open-season months (only the four June conceptions fall in the closed season), giving $\beta = 0.939$. Table 12 and its scoring against the season are reproduced in Figure 1.

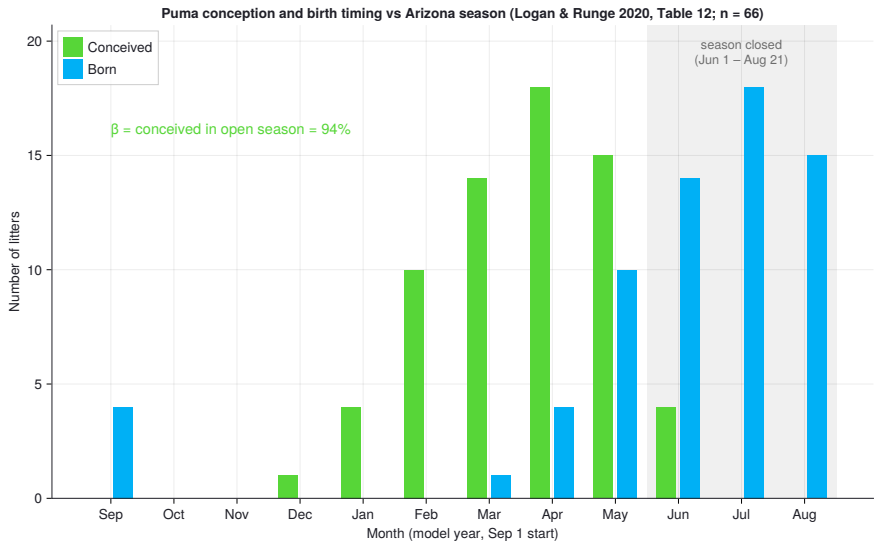

Figure 1: Litter timing from Logan & Runge (2020) Table 12, scored against the AGFD season (open season with a September model-year start; closed June–August). Conceptions cluster inside the open season and births inside the closed season, so a female must survive the open season pregnant for the litter to appear. Of 66 recorded litters, 62 fall in open-season months, giving the fecundity harvest-exposure fraction $\beta = 0.939$ used throughout.

Matrix Parameters

We build our unharvested Leslie matrix as follows:

$$L = \begin{pmatrix} 0 & 0 & F & F & \cdots & F & F \\ \sigma_0 & 0 & 0 & 0 & \cdots & 0 & 0 \\ 0 & s_{\text{sub}} & 0 & 0 & \cdots & 0 & 0 \\ 0 & 0 & s_{\text{ad}} & 0 & \cdots & 0 & 0 \\ \vdots & & & \ddots & & & \vdots \\ 0 & 0 & 0 & 0 & \cdots & s_{\text{ad}} & 0 \end{pmatrix}$$

The matrix acts on the female segment of the population in one-year age classes, 0 (kittens) through 13 and where we assume any lion that reaches age 14 does not survive to the next year, so the total number of classes is $n = 14$. The subdiagonal is the per-class survival vector $s = (s_0, s_1, \ldots, s_{n-2})$, where s_i is the probability that a class-i female reaches class $i+1$, assembled from three published stage estimates rather than interpolated:

$$s_i = \begin{cases} \sigma_0 & i = 0 \quad \text{(kitten)} \\ s_{\text{sub}} = 0.68 & i = 1 \quad \text{(subadult)} \\ s_{\text{ad}} = 0.86 & i \geq 2 \quad \text{(adult, flat).} \end{cases}$$

Kitten survival σ_0 is the first entry s_0 of this vector. Fecundity is chosen to not vary with age, so no per-class fecundity symbol is needed and the top row carries the single

value F in every column at and above the age of first reproduction $a_r = 2$ and zero in the columns below it, as displayed in L above. Classes below a_r therefore contribute no recruitment. All rates are female rates, and the model tracks females only. The female fraction ϕ enters through the standing female population ϕN_0 against which the harvest rate is computed; how that standing population is determined is where the two criteria below differ.

Female fecundity is the product of the three stage-level reproductive quantities of Logan & Runge (2020) Table 11,

$$F = c\,\rho\,m,$$

where c is litter size, ρ the female fraction of nurslings, and m the parturition rate (proportion of females breeding per year). At the reference-period point estimates ($c = 2.8$, $\rho = 0.44$, $m = 0.63$) this gives $F = 0.776$. Rather than fix F at its point estimate, we sweep it across the interval induced by the Table 11 confidence intervals on c, ρ, and m. Taking the product of the interval endpoints gives $F \in [0.412, 1.232]$, which is the range used for the grids reported here. This endpoint-product construction is deliberately wide and overstates the true joint spread; the consequences are discussed in the corresponding model hypothesis (*Rate uncertainty*). Treating the three intervals as independent (combined in quadrature on a log scale) would instead give the narrower $F \in [0.562, 1.073]$. We report the wider band because it is the more generous to a finding of sustainability at its high end.

Harvest enters after the vital rates are set, discounting survival in full and fecundity in part:

$$s_i \mapsto \tilde{s}_i = s_i(1 - h_i), \qquad F \mapsto \tilde{F}_i = F(1 - \beta h_i) \quad (i \geq a_r),$$

where the class-i harvest rate converts a kill count into a rate against the standing female abundance in that class. Writing n_i for that abundance,

$$h_i = \min\left(\frac{K_i}{n_i},\ 1\right),$$

with K_i the mean annual female kill in class i (AGFD FOIA record, 2018–2024, unaged apportioned) and the cap enforcing that a class cannot lose more than all its animals. The survival discount is unqualified: a harvested female does not age into the next class. The fecundity discount carries β because only a female harvested while carrying a season-conceived litter fails to produce it (see Temporal Structure). The harvested fecundity $\tilde{F}_i$ carries a class index though F does not, since h_i does: the age dependence in the top row is entirely the harvest's.

Encoding harvest as a rate rather than as an absolute removal is what makes the effect of a given quota depend on abundance: removing 100 females from a population of 500 and from one of 5,000 are not the same event. The two criteria developed below differ only in what they take the standing abundance n_i to be. The projected criterion σ_{cT} (see Projected Trajectory and Severe Decline: σ_{cT}) reads n_i off the population as it actually stands in each year of a simulated trajectory, so the harvest rate rises as the population falls. The static criterion σ_c (see Static Replacement: σ_c) fixes n_i at its share of the AGFD-stated abundance and holds it there.

ϕ is not estimated but swept across $\{0.52, 0.65, 0.75\}$; see the *Female fraction* ϕ hypothesis in the Model Hypotheses section. L&R = Logan & Runge (2020).

Table 2: Model parameters, point estimates, and sources. Vital rates are Logan & Runge (2020) [4] reference-period (unhunted) values, except ρ, which they report pooled across both periods; harvest enters separately. 95% CIs are those reported in the cited tables.

Symbol	Meaning	Value	95% CI	Source
N_0	Assumed total population (both sexes, all ages)	—	—	AGFD (Table 1)
ϕ	Female fraction of total population	0.52, 0.65, 0.75	—	L&R Table 8
σ_0	Kitten (age-0) female survival	computed	0.14–0.51	L&R Table 10
s_{sub}	Subadult female survival, locked to $0.791\, s_{ad}$	0.68	0.43–0.84	L&R Table 9
s_{ad}	Adult female annual survival; swept axis, over $[0.72, 0.94]$	0.86	0.72–0.94	L&R Table 9
c	Litter size (kittens/litter)	2.8	2.4–3.1	L&R Table 11
m	Parturition rate (prop. breeding/yr)	0.63	0.49–0.75	L&R Table 11
ρ	Female fraction of nurslings	0.44	0.35–0.53	L&R Table 11
F	Female fecundity = $c\rho m$; swept axis, over $[0.412, 1.232]$	0.776	—	Derived (L&R Table 11)
a_r	Age class of first reproduction	2	—	L&R Table 11 (32 mo)
n	Number of age classes (max age)	14	—	Modeling choice
K	Mean annual kill vector by class	—	—	AGFD FOIA, 2018–2024

Projected Trajectory and Severe Decline: σ_{cT}

The first set of models run the population forward under a Leslie matrix rebuilt at every step from the population it is about to act on. AGFD sets quotas as counts, not as rates, so we allow the population to evolve under these quotas to directly test whether or not it remains stable through time.

Write $p_t \in \mathbb{R}^n$ for the female age vector in year t, with components $p_{i,t}$ over classes $i = 0, \dots, n-1$, and

$$P_t = \sum_i p_{i,t}$$

P_t rather than N_t, so that N_0 stays reserved for the AGFD total-population figure of Table 1, which counts both sexes. The two are related by $P_0 = \phi N_0$.

for the total female population in that year. The trajectory starts from the AGFD-stated abundance,

$$p_0 = \phi N_0\, d, \qquad P_0 = \phi N_0,$$

where d is the stable age distribution of the unharvested matrix L, normalised to sum to one.

At each step the harvest rates are computed class by class from the current state,

$$h_{i,t} = \min\left(\frac{K_i}{p_{i,t}},\ 1\right),$$

and the year-t matrix is assembled from the vital rates discounted by those rates. Writing

$$\tilde{s}_{i,t} = s_i\left(1 - h_{i,t}\right), \qquad \tilde{F}_{i,t} = F\left(1 - \beta h_{i,t}\right) \quad (i \geq a_r),$$

the year-t Leslie matrix is

$$L_t = \begin{pmatrix} 0 & 0 & \tilde{F}_{2,t} & \cdots & \tilde{F}_{n-1,t} \\ \tilde{s}_{0,t} & 0 & 0 & \cdots & 0 \\ 0 & \tilde{s}_{1,t} & 0 & \cdots & 0 \\ \vdots & & \ddots & & \vdots \\ 0 & 0 & \cdots & \tilde{s}_{n-2,t} & 0 \end{pmatrix},$$

the two leading zeros in the top row being the classes below $a_r = 2$. The population then advances by

$$p_{t+1} = L_t\, p_t, \qquad P_{t+1} = \sum_i p_{i,t+1},$$

and p_{t+1} is in turn what L_{t+1} is built from. The recursion is therefore nonlinear: the matrix is a function of the state, $L_t = L(p_t)$, and the dynamics are $p_{t+1} = L(p_t)\, p_t$ rather than the linear $p_{t+1} = L p_t$ of the standard model.

Thus the model takes the female share of the AGFD-stated abundance, $P_0 = \phi N_0$, and runs it forward under the dynamic above. The behavior of P_t determines whether the population is stable or not.

The severe-decline condition. The population is taken to have suffered a severe decline within a window of T years if it falls below a fixed fraction ε of its starting abundance at any point in that window,

$$P_t < \varepsilon P_0 \quad \text{for some } 1 \leq t \leq T,$$

so that the population avoids a severe decline over the window exactly when

$$\min_{1\le t\le T} P_t \;\ge\; \varepsilon P_0 = \varepsilon\,\phi N_0.$$

The critical kitten survival σ_{cT} is the least kitten survival for which that floor holds,

$$\sigma_{cT} = \min\Big\{\,\sigma_0 \in (0,1] \;:\; \min_{1\le t\le T} P_t(\sigma_0) \ge \varepsilon\,\phi N_0\,\Big\},$$

where the dependence on σ_0 runs through p_0 and through every L_t. Below σ_{cT} the population crosses the floor at some $t \le T$; at or above it, it does not. Where no $\sigma_0 \in (0,1]$ holds the floor, σ_{cT} does not exist at that point of the rate grid and the quotas drive the population past the floor whatever the biology does.

Static Replacement: σ_c

The second model is the standard Leslie construction: a single constant matrix with a fixed harvest rate.

Here the standing abundance in class i is fixed at its share of the AGFD-stated female population,

$$n_i = \phi N_0\, d_i, \qquad h_i = \min\!\left(\frac{K_i}{\phi N_0\, d_i},\; 1\right),$$

with d the stable age distribution as above. Writing $\tilde{s}_i = s_i(1 - h_i)$ and $\tilde{F}_i = F(1 - \beta h_i)$, the harvested matrix is the constant

$$L = \begin{pmatrix} 0 & 0 & \tilde{F}_2 & \cdots & \tilde{F}_{n-1} \\ \tilde{s}_0 & 0 & 0 & \cdots & 0 \\ 0 & \tilde{s}_1 & 0 & \cdots & 0 \\ \vdots & & \ddots & & \vdots \\ 0 & 0 & \cdots & \tilde{s}_{n-2} & 0 \end{pmatrix},$$

the population advances by $p_{t+1} = Lp_t$ with L the same at every step, and L has dominant eigenvalue λ. The critical kitten survival σ_c is the value solving

$$\lambda(\sigma_c) = 1.$$

Below σ_c the quotas remove more than the population replaces at N_0; above it they do not. As with σ_{cT}, σ_c fails to exist where no $\sigma_0 \in (0,1]$ achieves replacement, and that region is plotted.

The unharvested matrix (the same construction with $h_i \equiv 0$) has dominant eigenvalue λ_0, and its replacement kitten survival σ_0^* solves $\lambda_0(\sigma_0^*) = 1$. Since harvest can only remove animals, λ_0 is an upper bound on λ at every assumed abundance, so $\sigma_c > \sigma_0^*$ necessarily, and $\sigma_c \to \sigma_0^*$ as $N_0 \to \infty$. Where σ_0^* itself does not exist, the deficit lies in the vital rates rather than in the harvest and no assumed abundance rescues the population.

Fixing $n_i = \phi N_0 d_i$ evaluates the harvest rate at the stated abundance. The question σ_c answers is: given that AGFD states N_0 animals are standing now, does recruitment balance removal at that abundance? This is the most basic assessment of the claim of sustainability available, essentially a qualitative yes or no.

Since the kill counts are fixed, a declining population is in fact hunted at a rising rate, so λ evaluated at N_0 is an upper bound on the growth rate a declining trajectory actually realises and the true decline is faster than λ^t. The correct reading of λ is therefore strictly local, as a replacement diagnostic at N_0.

The static Leslie model under a fixed harvest is the standard instrument for a sustainability claim, and stability of an age-structured population means $\lambda \geq 1$, so σ_c is essentially a qualitative assessment of the stability claim. σ_{cT} quantifies what σ_c implies through simulated trajectories over a fixed timeline. They are thus complementary analyses and their ordering and the size of the gap between them are taken up in the Results and Analysis section.

Experimental Setup

Both criteria are solved at every point of the same (s_a, F) rate grid and at each of the three female fractions, so that the comparison between them is made under identical assumptions. The grid, the fecundity band, and the ϕ values are described in the Results and Analysis section, and the horizon and the threshold are held fixed.

Horizon. The horizon $T = 20$ is chosen against AGFD's own stability claim. AGFD has asserted a statewide population of roughly 2,000–3,000 mountain lions for more than twenty years, with [3] reporting a 2004–2018 average of 2,845 and the department's 2024 FAQ [1] giving 2,876 as a 2004–2020 average. Taking the department at its word, the population stood at approximately 2,876 in 2018, a year inside the window both of those figures average over and inside the era of the current quota system. Anchoring the projection there, $T = 20$ reaches 2038, twelve years from the present, so the horizon asks whether the quotas, applied to the population AGFD says was standing in 2018, drive it to a severe decline within twelve years of today. Anchoring at 2018 also matches the kill vector K, which is the 2018–2024 mean.

Threshold. The severe-decline threshold is set at $\varepsilon = 0.20$, an 80% decline from the starting abundance. The floor is imposed on the female segment, at $0.20\,\phi N_0$; carried back to a statewide total at the same female fraction it corresponds to roughly 575 animals at $N_0 = 2{,}876$. This is short of quasi-extinction and is not intended as a viability threshold. It is a measure of the magnitude of loss the quotas would produce were they in fact unsustainable.

Comparison. Both criteria are computed at every grid point and both are reported. They answer different questions: whether the quotas are consistent with stability at all, and what the biology would have to deliver to keep the resulting decline short of 80% within the window.

Model Hypotheses

- **Colorado vital rates transferred to Arizona.** Every vital rate is Logan & Runge's Uncompahgre Plateau (Colorado) estimate applied to Arizona. Their CIs come from a ~3,000 km^2 plateau with known prey; nothing establishes that Arizona's

true rates lie inside them. However, similarly Howard et al. (2020) [3], the statistical population reconstruction AGFD relies on, had no usable Arizona kitten data and so imported kitten survival directly from Logan & Runge as the single qualifying study, at Logan's treatment-period value of **0.34**. In other words, AGFD freely made the same transfer in their own analysis, although for a more limited set of vital parameters. We thus take the transfer as accepted practice by AGFD and apply it in evaluating the quotas here. Moreover, by sweeping s_a and F over a wide range we avoid claiming particular values (Results and Analysis). *Attribution: Logan & Runge (2020); kitten survival imported by Howard et al. (2020) as AGFD's own parameterization, the remaining rates transferred and swept rather than fixed.*

- **Reference-period (unhunted) rates, not treatment-period.** The swept bands are the reference-period intervals: $s_a \in [0.72, 0.94]$, and the F band built from the reference litter-size and parturition intervals (ρ is pooled across both periods). Harvest enters separately through the harvest rates, so treatment-period rates would double-count it. Treatment adult survival is **0.74** (**0.63–0.82**) against the reference **0.86**, so the swept band sits above the treatment range and is the generous choice. *Attribution: Logan & Runge (2020), reference period.*

- **Adult survival constant across age classes.** A single adult annual rate (s_{ad} = **0.86**) is applied flat to every adult transition; one point estimate cannot identify a senescence curve. Flat adult survival is generous (no senescence) and concedes ground rather than claiming it. *Attribution: Logan & Runge (2020), Table 9.*

- **Terminal age class n = 14, no survival past it.** A modeling choice informed by AGFD aged kill data; with flat adult survival the truncation performs the role senescence would. Its effect is small relative to the swept rates: at the reference values σ_0^* moves only from **0.378** to **0.317** across $n = 10 \rightarrow 14$, and $n = 14$ is the generous end of that range. *Attribution: modeling choice, informed by Logan & Runge's terminal observations (oldest harvested 10.1 yr; wild mountain lions ~12–15 yr).*

- **Subadult survival locked to adult survival in the sweep.** s_{sub} = 0.68 and s_{ad} = **0.86** are separately estimated and Logan & Runge publish no joint uncertainty for them. Since every result reported here comes from the rate grid, in which s_{ad} is a swept axis, subadult survival is carried along by the ratio of the two point estimates, $s_{sub} \approx 0.791 \cdot s_{ad}$. This rule is chosen because it keeps the induced subadult value inside its own published CI (**0.43–0.84**) across the whole adult range, so the sweep cannot manufacture a pair the intervals exclude. It remains a lockstep rule, not a joint distribution. *Attribution: ratio of Logan & Runge (2020) Table 9 point estimates.*

- **Fecundity constant for age classes at and above first reproduction.** Litter size, parturition, and ρ are stage-level with no age breakdown, so a maturation ramp would be invented. *Attribution: Logan & Runge (2020), Table 11 (stage-level estimates).*

- **Age of first reproduction a_r = 2.** Mean age at first litter is 32 months (CI 27–36), which straddles classes 2 and 3; the data does not resolve between them. We take a_r = 2 throughout as the more generous hypothesis, since earlier first reproduction

raises λ and so lowers the kitten survival the quotas require. *Attribution: Logan & Runge (2020), Table 11.*

- **Female fraction ϕ.** No source estimates ϕ directly; it cannot be recovered from the harvest sex ratio (hunters select for males). The only standing-population evidence is Logan & Runge Table 8 (adult F:M of $1.2{:}1$ to $3{:}1$, i.e. $\phi \approx 0.55$–0.75). The analysis is run at $\phi \in \{0.52, 0.65, 0.75\}$, spanning that band, with 0.52 set just below its lower edge as a mildly conservative floor and 0.75 at its upper edge. Higher ϕ means more standing females, a lower per-female harvest rate, and a lower required kitten survival, so we include both extremes for comparison. *Attribution: Logan & Runge (2020), Table 8 (adult segment).*

- **Rate uncertainty** Fecundity uncertainty enters as a band on F itself rather than as a reshaping of the age profile, because Logan & Runge publish stage-level point estimates with intervals and no age-resolved covariance; an age shape would add structure the source does not contain. The band $F \in [0.412, 1.232]$ is the product of the interval endpoints of c, ρ, and m, which places all three at their 97.5th percentile at once and so overstates the spread: independent combination in quadrature gives $F \in [0.562, 1.073]$. We use the wider band because the overstatement inflates the grid in the high-fecundity corner, which is exactly where a finding of sustainability lives; widening the axis beyond what the data supports can only make the quotas look *more* survivable, never less. Survival uncertainty is swept on s_a directly, under the lockstep rule above. *Attribution: derived from Logan & Runge (2020) CIs.*

- **Stable age distribution: initial condition versus standing shape.** The stable age distribution plays two different roles in the two criteria. In σ_{cT} it sets p_0 only; from $t = 1$ onward the age structure evolves under the projection and the choice washes out well inside $T = 20$, so it is an initial condition rather than a standing assumption. In σ_c it is the denominator shape at every class and does not wash out, since the matrix is constant. In both cases the shape follows from the vital rates rather than being imposed, but it remains a live assumption in the static case. The harvest age composition is not an alternative: harvest composition is standing composition times age-specific vulnerability, that factor is not identified by anything available, and Logan & Runge document strong hunter selectivity, so the harvest measures preference rather than structure. *Attribution: modeling choice.*

- **Denominator shape taken from the unharvested matrix.** In σ_c the shape d is the stable age distribution of the *unharvested* matrix at the candidate σ_0, while the abundance ϕN_0 it partitions is that of a harvested population. The self-consistent alternative is the stable distribution of the harvested matrix, which is a fixed point of $d \mapsto d\big(h(d)\big)$ since h depends on d. The same choice enters σ_{cT} only through p_0, where it washes out over the horizon, so the question is confined to the static criterion. The magnitude of the effect has not been computed. *Attribution: modeling choice; unresolved.*

- **Unaged harvest apportioned proportionally.** Each year's unaged females are distributed across that year's aged classes in proportion to the aged counts, and the 2018–2024 mean is taken afterward; the apportioning is per year because the

aging rate is not stationary. Over the estimation window this carries the mean annual female kill from 102.6 aged to 119, an increase of about 16%, reflecting the 13.8% unaged share over 2018–2024 against 17% over the full 2004–2024 record. Dropping them instead biases every critical value toward sustainability. The proportional fill is a missing-data assumption and not a neutral one: aging failure plausibly correlates with age, unit, and hunter. *Attribution: modeling choice (missing-data assumption).*

- **Non-hunter mortality excluded from K.** The FOIA record counts hunter harvest only. The 2024 AGFD summary reports 37 further animals removed that year — 27 depredation and 10 other — with no sex breakdown published, so they cannot be allocated to the female kill vector. Were their sex ratio to resemble the hunter harvest (41% female), that would be roughly 15 additional female deaths, about 12% on top of K. Omitting them understates the removal and therefore biases every critical value *downward*, toward a finding of sustainability. *Attribution: AGFD harvest summaries; omitted for want of a sex breakdown.*

Results and Analysis

The results of our experiments are shown in Figures 2–7 below, with the grid statistics behind them collected in Table 3.

σ_c tests stability in the strict sense of whether the population declines. AGFD asserts that the population is stable under the current quotas. Stability of an age-structured population under a fixed harvest means $\lambda \geq 1$, and σ_c is exactly the kitten survival at which $\lambda = 1$ when the harvest rates are evaluated at the abundance AGFD states. It is the boundary between a population that replaces itself under the quotas and one that does not. In other words, σ_c is the minimum kitten survival rate required, given F and s_a such that current hunting quotas do not cause a population decline.

σ_{cT} attaches a magnitude and a timeline to the decline that σ_c only detects. It is the least kitten survival, given F and s_a, for which a population starting at the AGFD-stated abundance, hunted at rates recomputed from its own realised state each year, never falls below 20% of that abundance in any year through 2038. Where σ_c asks whether the quotas are consistent with stability, σ_{cT} asks what the biology would have to deliver to hold the resulting decline short of an 80% loss within twelve years of today.

Reading the figures. Each figure fixes the female fraction ϕ and sweeps adult female survival s_a on the horizontal axis (with subadult survival locked to $s_{\text{sub}} = 0.791\, s_a$) and female fecundity F on the vertical axis, over the $F \in [0.412, 1.232]$ band derived above. The grid is $25 \times 25 = 625$ cells at $N_0 = 2{,}876$ and $K = 119$ female kills per year.

2018–2024 mean, unaged apportioned; the aged-only total is 102.6.

We present the three pairs of figures across the band $\phi \in \{0.52, 0.65, 0.75\}$, whose upper end is the most favorable to AGFD that the literature supports (Logan & Runge Table 8 implies adult F:M ratios corresponding to $\phi \approx 0.55$–0.75). Higher ϕ means more females in the standing population, a lower per-female harvest rate, therefore a lower required kitten survival, and therefore a higher likelihood that current AGFD quotas are sustainable.

Each point in the plot corresponds to a choice of s_a and F (x and y axis coordinates). Given those two parameter values, the color of each point is the minimum kitten survival rate required in order to have stability or avoid a severe decline (σ_c or σ_{cT}).

The solid curves are different contour lines showing different values, from top right to bottom left:

- the sandybrown contour marks **0.34**, Logan & Runge's treatment-period (hunted) estimate, the value also used in Howard et al. 2020;
- the orangered contour marks Logan & Runge's mother-alive kitten survival of **0.51**, the top of their published range (**0.14** orphaned to **0.51** mother alive);
- the solid red contour marks the edge of the region where no kitten survival achieves replacement at N_0, that is, the boundary of the region where σ_c does not exist;
- the dashed red curve marks the stricter subset where even an unharvested population cannot replace itself, where σ_0^* does not exist (see Static Replacement: σ_c).

These are two different Logan & Runge stratifications: **0.51** conditions on the mother surviving, while **0.34** is the period estimate under hunting, and it is the latter that underpins the department's population figure.

The red cross marks the values given by the vital-rate point estimates in Logan & Runge. Everything below and to the left of the **0.51** contour demands kitten survival better than Logan & Runge observed under their most favorable conditions. The colour scale is solved separately on each panel, so it is the contours rather than the colours that carry across a pair. The colourbar is drawn with the required kitten survival increasing downward, matching the map, where the requirement rises as F falls.

The above contours help in interpreting the plots: Up and to the right is lower minimum required kitten survival, down and to the left higher. This makes sense because up and to the right is higher survival s_a and fecundity F, which allow for lower kitten survival rates to prevent decline.

On each plot, any point below and to the left of the orangered curve requires a minimum kitten survival above **0.51**, the mother-alive rate reported in Logan & Runge. Any point below and to the left of the sandybrown contour requires kitten survival above **0.34**, their hunted rate. Every such point therefore describes a combination in which stability is available only at the cost of a vital rate the literature does not support: either kitten survival must exceed what has been observed, or adult survival and fecundity must, or both.

We make no claim about which values are the true ones. The model is run at every point of the grid and the minimum kitten survival computed there from the AGFD-stated abundance and kill data; the contours then let a reader judge for themselves which cells are biologically defensible. As the next section sets out, few are.

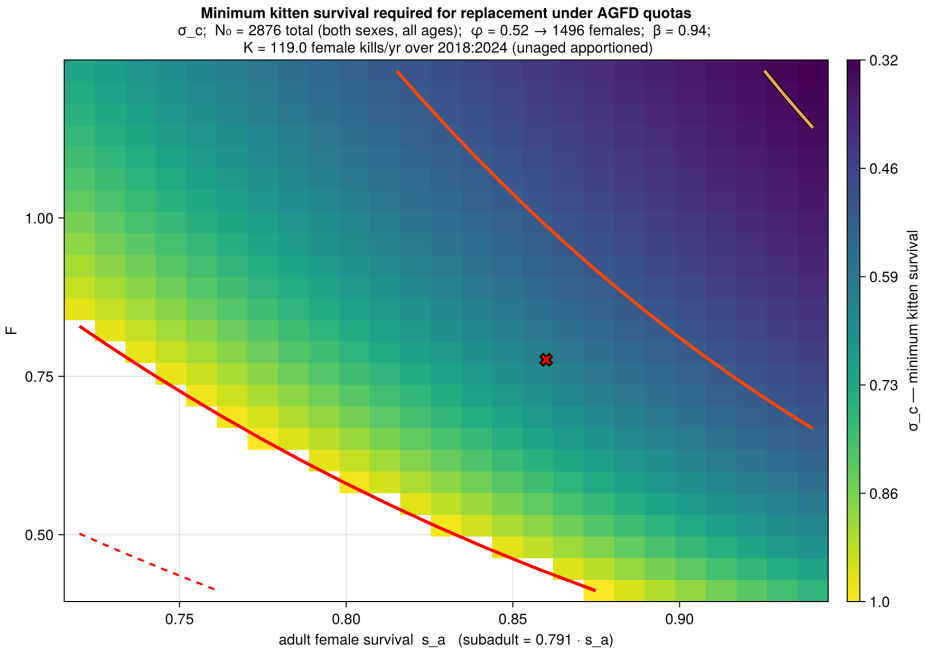

Figure 2: The static criterion at ϕ = 0.52 (1,496 females): the minimum kitten survival σ_c at which recruitment balances the current AGFD kill counts at the stated abundance. White cells admit no kitten survival that achieves replacement and coincide with the solid red curve by construction.

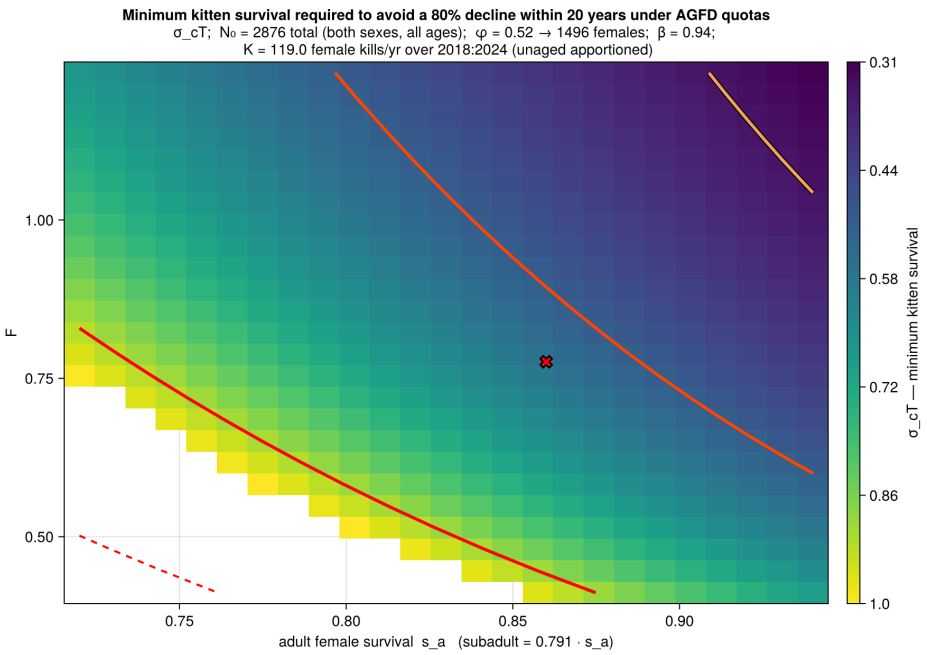

Figure 3: The projected criterion at ϕ = 0.52: the minimum kitten survival σ_{cT} required to avoid an 80% decline within 20 years, through 2038. The white region is the smaller projected-infeasible set lying inside the solid red curve; between the two, the quotas preclude replacement without forcing an 80% loss inside the window.

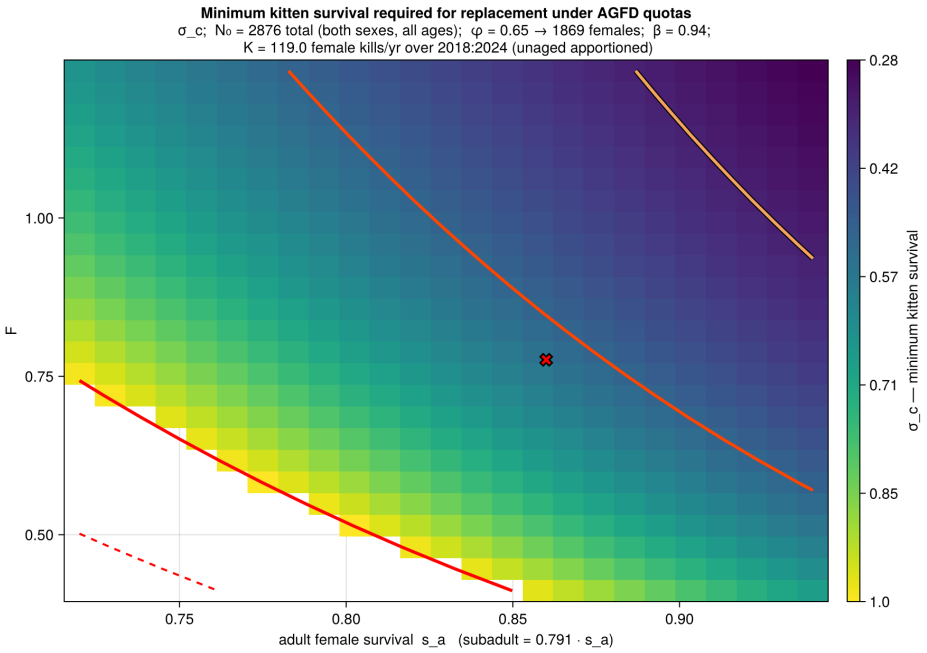

Figure 4: As Figure 2, the static criterion at ϕ = 0.65 (1,869 females).

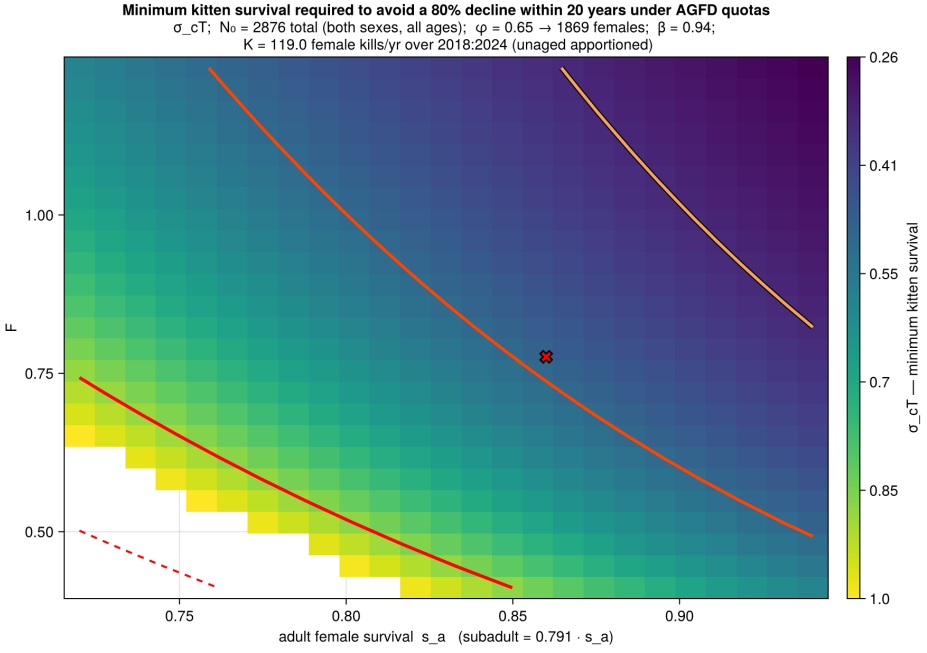

Figure 5: As Figure 3, the projected criterion at ϕ = 0.65.

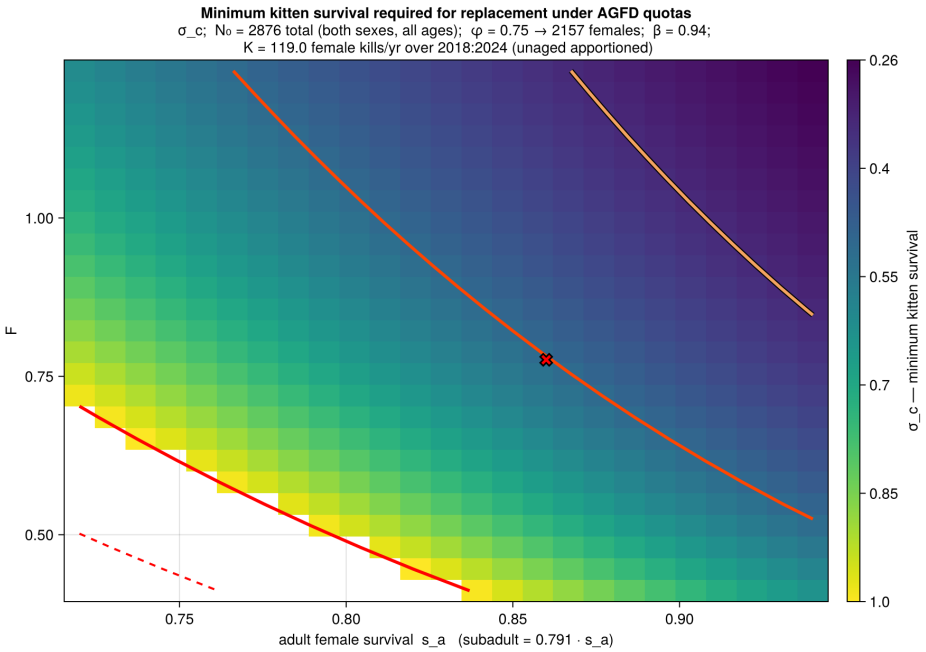

Figure 6: As Figure 2, the static criterion at $\phi = 0.75$ (2,157 females), the top of the literature-supported band.

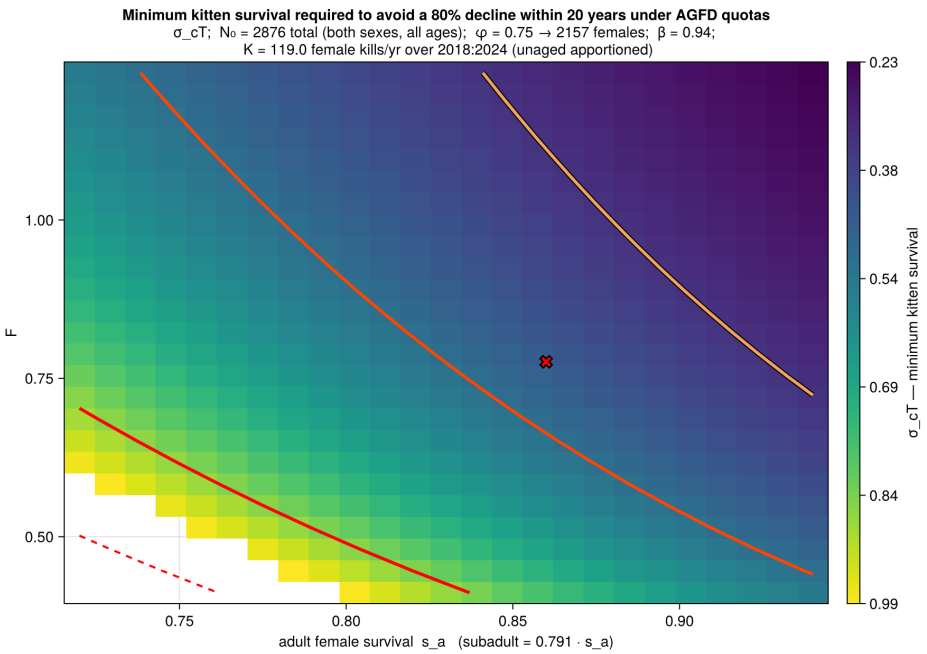

Figure 7: As Figure 3, the projected criterion at $\phi = 0.75$. This is the most favorable combination in the analysis: the more permissive criterion at the top of the literature-supported female fraction.

Table 3: Both criteria over the $25 \times 25 = 625$ cell rate grid at $N_0 = 2{,}876$ and $K = 119$ female kills per year. "No solution" counts cells at which no kitten survival in $(0, 1]$ satisfies the criterion. "Unsupportable" is the share of the whole grid demanding more kitten survival than Logan & Runge's mother-alive maximum of 0.51, counting the no-solution cells, which demand more than any kitten survival whatever.

ϕ	Criterion	No solution	In 0.14–0.51	Min	Median	Unsupportable
0.52	σ_c	108	139	0.324	0.631	77.8%
	σ_{cT}	76	179	0.306	0.595	71.4%
0.65	σ_c	75	206	0.278	0.575	67.0%
	σ_{cT}	43	268	0.257	0.529	57.1%
0.75	σ_c	61	239	0.255	0.547	61.8%
	σ_{cT}	30	321	0.232	0.492	48.6%

What the grids show. All six panels move in the expected direction as ϕ rises: the infeasible region retreats toward the low-survival, low-fecundity corner and the share of the grid whose requirement falls inside the published range grows. On the static criterion the median required kitten survival falls from 0.631 to 0.575 to 0.547; on the

projected criterion, from **0.595** to **0.529** to **0.492**. Taking together the cells demanding more than Logan & Runge's mother-alive **0.51** and the cells admitting no kitten survival at all, the share of the rate region requiring more than the published record supports anywhere runs **77.8%**, **67.0%** and **61.8%** on the static criterion and **71.4%**, **57.1%** and **48.6%** on the projected one (Table 3).

The minimum requirement anywhere on any of the six grids is **0.232**, at the extreme high-survival, high-fecundity corner of the most permissive panel. No cell in the analysis requires as little kitten survival as Logan & Runge's orphaned estimate of **0.14**, so the "in **0.14–0.51**" column of Table 3 is in effect a count of cells at or below **0.51**: the lower bound never binds.

The static criterion therefore contradicts AGFD's stability claim over a majority of the rate region at every female fraction in the band, including the most favorable, and the median requirement stays above the **0.51** ceiling throughout. The projected criterion, asking the more permissive question, gives ground as it must. It still contradicts the claim over a majority of the region at ϕ = **0.52** and ϕ = **0.65**, with medians of **0.595** and **0.529**. At ϕ = **0.75** it falls just short of a majority: **48.6%** of the grid is unsupportable and the median requirement is **0.492**, which sits just **0.018** below the published maximum.

Even at ϕ = **0.75** and on the more permissive criterion, roughly half the rate region demands kitten survival above anything Logan & Runge recorded under any conditions, the median requirement exceeds their treatment-period estimate of **0.34** by a wide margin, and the static criterion at the same ϕ gives **61.8%** and a median of **0.547**. The conclusion that survives across the whole band and both criteria is that over most of the plausible rate region, and at every female fraction the literature supports, the current quotas require kitten survival that the published record does not supply.

The point estimates (red cross) sit near the **0.51** contour in all six panels. The dashed contour, where even an unharvested population cannot replace itself, stays in the extreme low corner throughout, so across the plotted band the deficit is attributable to the harvest rather than to the vital rates alone.

Therefore one can reasonably conclude that if one accepts:

- The AGFD's total population estimates are accurate
- The age-structured kill data does not *overstate* the female harvest.
- The use of a Leslie model as above, in either case, is acceptable and yields accurate information
- The vital rate ranges used for F and s_a are sufficiently wide
- The female fraction ϕ ranges are sufficiently wide

then the statement that current quotas are sustainable requires either kitten survival, or some other vital rate governing fecundity or survival, to be higher than the published record supports. On that basis the quotas appear to be likely causing decline as defined above.

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[3] April L. Howard, Matthew J. Clement, Frank R. Peck, and Esther S. Rubin. Estimating mountain lion abundance in Arizona using statistical population reconstruction. *The Journal of Wildlife Management*, 84(1):85–95, 2020.

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[5] Toshinori Okuyama. Census timing alters stage duration distributions in matrix population models. *Ecology and Evolution*, 9(14):8127–8136, 2019.

EXHIBIT K

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IN THE SUPERIOR COURT OF THE STATE OF ARIZONA
IN AND FOR THE COUNTY OF MARICOPA

CENTER FOR BIOLOGICAL DIVERSITY, ROBIN SILVER, Plaintiffs, vs. ARIZONA GAME AND FISH COMMISSION; ARIZONA GAME AND FISH DEPARTMENT; TOM FINLEY, in his capacity as Director of the ARIZONA GAME AND FISH DEPARTMENT; Defendants.	Case No. **DECLARATION OF RON THOMPSON** Assigned to:

I, RON THOMPSON, pursuant to Arizona Rule of Civil Procedure 80(c), declare, under penalty of perjury, that the following is true and correct:

1. I have personal knowledge of the facts stated herein, and if called upon, I could and would testify competently to them.

2. I reside in Pinetop, Arizona. I am a large carnivore conservation investigator, a wildlife biologist, and a resident of Arizona for approximately 65 years.

3. I am a member of the Arizona Game Ranger F.O.P. Lodge #74 and am Arizona Public Safety Retirement System Member.

4. I retired from the Arizona Game and Fish Department (AZGFD) as a regional law enforcement supervisor after 20 years' service, then served 2 additional years as the AZGFD's Large Carnivore Biologist (for mountain lions and black bears).

5. I am the holder of an Arizona Game and Fish Department Lifetime Hunting and Fishing License.

6. As described below, I personally have been involved in researching and managing mountain lions in the states of Arizona, New Mexico and Texas through engagement and employment with federal, state, university, and conservation nonprofits.

7. I hold a Bachelor of Science degree in Wildlife Biology from the University of Arizona.

8. In 1989, as a Wildlife Law Enforcement Officer with the Arizona and Game and Fish Department Wildlife, I assisted in exposing and publicizing the legal, yet unrestricted, trapping of mountain lions and bears in the Blue Primitive Area of northeastern Arizona as permitted then under the state of Arizona mountain lion and bear livestock depredation statute A.R.S. 17-302, without any evidence of livestock depredation. This action resulted in the requirement that there be proof that livestock had actually been killed or attacked before attempting to kill only the "offending" mountain lion or black bear. Prior to this, traps were permitted by AZGFD to be set upon the landscape to kill mountain lions and bears yearlong on ranches with or without depredation.

9. During the period 1990-2010 I initiated and managed numerous

investigations on the illegal commercial guiding and hunting for mountain lions (night hunting, killing over limits, releasing captured mountain lions after guides injured their feet so they could be immediately recaptured by hounds and shot by paying clients) and wrote a hunting regulation requiring all guides to complete a guide's test prior to being lawfully permitted to be a licensed guide in Arizona.

10. Between 2004 and 2007, I was a mountain lion researcher for the Turner Endangered Species Fund capturing and radio collaring mountain lions and studying the effects of their predation on bighorn sheep on the Armendaris Ranch near Truth or Consequences.

11. Between 2009 and 2012, I worked as a research associate for Sul Ross State University Alpine, TX studying the ecology of mountain lions in West Texas.

12. I am the primary author and editor of the only AZGFD Commission-approved Conservation Strategies Report for Mountain Lions and Black Bears for Arizona. In this report we recommended that field surveys be conducted towards the eventual science-based determination of a statewide mountain lion population calculation.

13. In 2011, I founded the nonprofit Primero Conservation.org, for which I am the current President. Primero Conservation.org is a non-profit 501(c)(3) public interest, conservation organization, EIN 274344761, with a website (primeroconservation.org) dedicated to the protection of endangered species and the habitats upon which they depend. And to the education of our next generation and the public about the ecological services that apex carnivores provide to our own health and wellbeing. Monitoring the management of mountain lions on a sustainable basis and reducing human conflicts with

all apex carnivores in the United States and Mexico are supported by my nonprofit employees and volunteers.

14. Between 2012-2015, I worked for the University of Arizona on the largest monitoring effort of wildlife in southern Arizona ever completed. During this effort we set trail cameras at over 200 sites in 25 mountain ranges to detect abundance of all species of wildlife, that included mountain lions, and endangered jaguars and ocelots. This effort continues today under the direction of the U of A Wild Cat Center.

15. Between 2020-2026, my nonprofit Primero Conservation, and its staff and members, researched, studied, and analyzed the data on the hunting of mountain lions in Arizona and determined kill rates by hunters were beyond a sustainable level in Arizona. We therefore conducted a Spatially Explicit Population study of Mountain Lions in Arizona in Quota Management Zone K. The study was derived from a concern for the overexploitation of the Arizona mountain lion population and on my experience as the state's past mountain lion manager responsible for the sustainability of mountain lions in the state of Arizona.

16. I have been a member of The Wildlife Society for over 50 years, and a founding member and current Council Member of the Wild Felid Research and Management Association (WFA) since 2007. The WFA is a non-profit 501(c)(3) public interest, conservation organization of wild felid researchers and managers. It is dedicated to the enjoyment and conservation of wild felids, including mountain lions, with a focus on the protection and restoration of felid habitats and the education of the public on the role of wild felids in the environment.

17. My aesthetic, recreational, educational, scientific, spiritual, and photographic interests in mountain lions have led me to attempt to improve how mountain lions are managed on a sustainable basis for all the Public to enjoy and benefit from the ecosystem services that mountain lions provide.

18. I sponsored and participated in and coauthored a published paper on the first use of noninvasive genetic analysis to census mountain lions in southwest Arizona. The result was a highly read published paper entitled: Genetic Analysis of Scats Reveals Minimum Number and Sex of Recently Documented Mountain Lions (www.fwspubs.org June 2011.Volume 2. Issue 1).

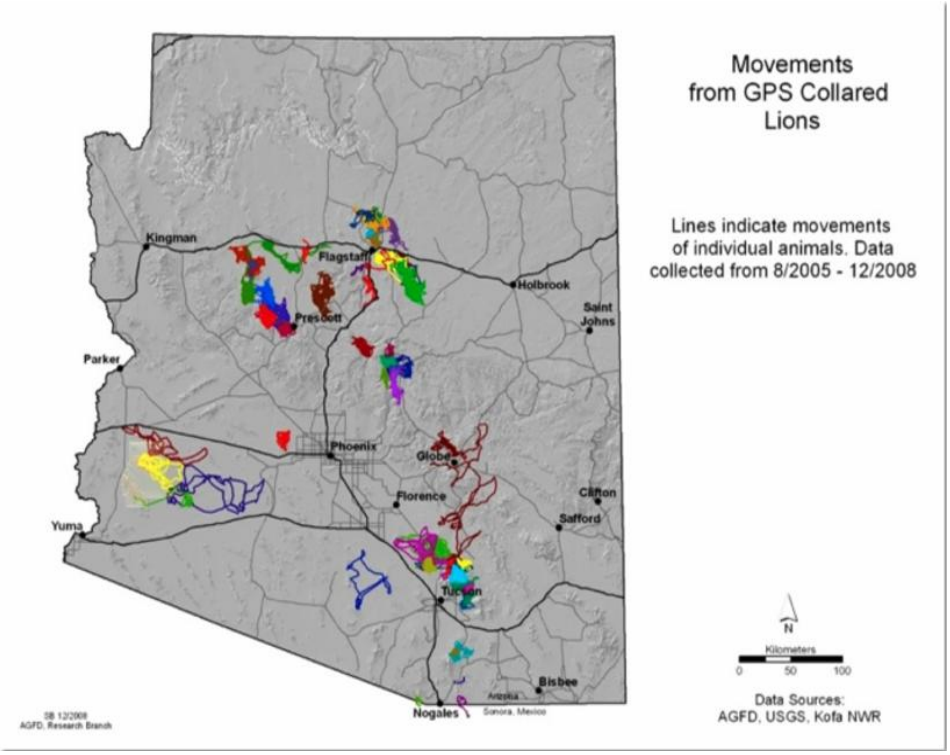
19. During my employment with AZGFD as the state's lion biologist and during a subsequent density study along the eastern border of Arizona with New Mexico between 2018-2022, I attempted to address the question of the value of immigration of mountain lions into Arizona from bordering states and the United States of Mexico (Mexico). Using genetic tools and DNA samples from radio collared lions and hunter-killed lions from Arizona and Mexico I assisted in describing that, since 2007, immigration is limited and declining due to: an increased volume on Arizona interstate highways, construction of an international border wall and the overkilling of lions in New Mexico.

20. Immigration is declining and will not be significant in the future because of the following additional factors: lion immigration from California requires movement of mountain lions from sparse state listed threatened subpopulations across the Mojave Desert, the Colorado River, as well as freeways, railways and fenced aqueducts, which are barriers; immigration from Utah has and will be minimal at best because it requires

movement across the Great Basin Desert, and the State of Utah is overhunted and currently without any limits whatsoever on the killing of mountain lions; immigration of lions from New Mexico has and will be minimal at best because it requires movement across their hunting zones that border Arizona which have recently been proven as being over hunted due to an overestimation of population numbers between 50-70%; immigration from Tribal Nations has occurred in the past when lion hunting was nonexistent or minimally hunted, but currently ALL Tribal Nations that support mountain lion subpopulations are actively hunted and currently contribute minimal immigrants, including the Hualapai, Navajo, White Mountain and San Carlos Apache and Tohono O'odham Nations; immigration from Mexico has historically occurred, but can no longer occur because of the extensive border wall as a barrier.

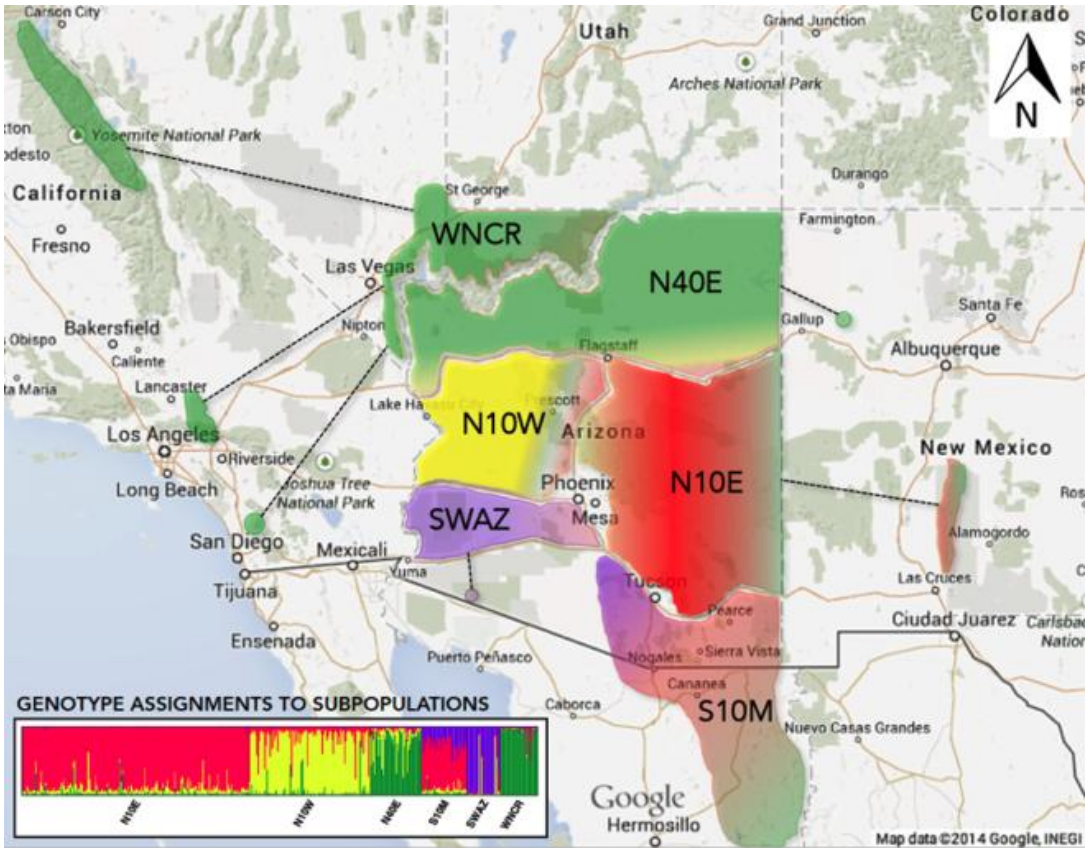
21. To depict these barriers and impacts on immigration I collected, collated, and mapped all known GPS locations of mountain lions from past research projects and then overlayed the state's vehicle interstates and Arizona's borders to determine if travel infrastructure was impeding the movements of mountain lions within or into Arizona. The result is a map that generally depicts that Arizona's high-speed, high-volume vehicle interstates are indeed a barrier to mountain lion movements (immigration, emigration) and that Arizona mountain lions live within six polygons as defined by our state's four

interstates (I-8, I-10, I-17 and I-40). In the near future, a new Interstate 11 will act as an additional barrier to mountain lion immigration.



22. In 2009, the U.S./Mexico international border was largely open to trans-border movements of mountain lions. However, the border wall in this area now, as along much of Arizona's southern border, prevents mountain lions from being a significant genetic introgression provider, or a direct population immigration source from Sonora, Mexico. The "border wall affect" is relatively new and there is a declining ability of apex carnivores such as mountain lions and bears to immigrate into Arizona. Arizona's mountain lions immigrate into and emigrate out of Arizona ONLY on a limited basis due to landscape barriers including extreme desert environments such as the California Mohave desert and the water-limited southwestern Cabeza Prieta National Wildlife Refuge and Wilderness Area. This was proven genetically from an analysis of genetic samples collected while I was employed by AZGFD.

23. In 2014, using DNA samples previously collected during my tenure as the state's lion manager, Dr. Ashwin Naidu and colleagues [Naidu et al. (2014)] used all known genetic samples of mountain lions (n >400) in Arizona and Sonora, Mexico to identify 6 distinct subpopulations of mountain lions in Arizona demarcated within 6 polygons due defined by Arizona's four Interstates. This "interstate highway isolation" reduces "genetic fitness" for regional mountain lion subpopulations. Dr. Naidu's genetic study was, and remains, the largest genetic examination of Arizona's mountain lion relatedness accomplished to date. The results were expressed in a single image showing regional subpopulation relatedness by color within polygons formed by Arizona Interstates as follows:



24. Arizona was once considered a "source" of genetic introgression providing immigrants into Mexico, New Mexico, and California. As Arizona's subpopulations shrink due to overkilling, and without an expected level of genetic introgression from immigration, subpopulations will further decline at a faster rate than current overkilling is already causing. This conservation need was addressed in the AZGFD-approved 2009 Conservation Strategies Report for Mountain Lions and Black Bears. To date it has been completely ignored.

25. I have reviewed the demography models done by Dr. Jim Sanderson, Dr. Martin Taylor, and Dr. Zach Gelbaum. I agree with the conclusions of all studies: under the current AZGFD mountain lion sport hunting strategy, the mountain lion population in the State of Arizona will be unsustainable, nonfunctional, and nonviable in the near future.

26. I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.

Executed this 4th day of August 2026.

By: /s/ *Ron Thompson*
Ron Thompson

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IN THE SUPERIOR COURT OF THE STATE OF ARIZONA
IN AND FOR THE COUNTY OF MARICOPA

CENTER FOR BIOLOGICAL DIVERSITY, ROBIN SILVER, Plaintiffs, vs. ARIZONA GAME AND FISH COMMISSION; ARIZONA GAME AND FISH DEPARTMENT; TOM FINLEY, in his capacity as Director of the ARIZONA GAME AND FISH DEPARTMENT; Defendants.	Case No. **DECLARATION OF ALETRIS M. NEILS** Assigned to:

I, Aletris M. Neils, declare as follows:

1. The facts set forth in this declaration are based on my personal knowledge and, if called as a witness, I could and would competently testify thereto under oath. As to those matters that reflect an opinion, they reflect my personal and professional opinion on the matter.

2. I grew up in rural Arizona on a working ranch and farm. I began tracking

wildlife as a young child with skills learned from my Native American family. I tracked my first puma (mountain lion, *Puma concolor*) at 8 years old and have tracked and observed wild cats ever since.

3. I obtained my Bachelor's degree with honors from Arizona State University, with a major in Conservation Biology. I obtained my Master of Science degree from the University of Florida in 2011, majoring in Interdisciplinary Ecology with a specialty focus in the field of Wildlife Conservation. I obtained a PhD from the University of Arizona (2019) in Natural Resources with an emphasis in Wildlife and Fisheries Science with minors in Ecology and Evolutionary Biology, Natural Resource Management, and Anthropology. I have received multiple awards and fellowships for my research including from the National Science Foundation, Arizona Association of Environmental Professionals, Wild Felid Association, and The Wildlife Society. I am also a U.S. Fulbright Fellow.

4. I have taught courses at multiple academic universities, including Arizona State University and the University of Florida. I was the Mammalogy (the study of mammals) professor at the University of Arizona (2012-2015) and the Carnivore Ecology Professor at Humboldt State University from 2017-2019. I have also been invited to guest lecture and/or teach about wild felids at dozens of institutions, including Oxford University, Yale University, and Andalas University in Padang, Sumatra.

5. Beginning in 1999, I was mentored by David E. Brown, who wrote the book on northern jaguars (Borderlands Jaguars, published in 2001). Until his death, David Brown was considered the leading on expert on jaguars in northern Sonora and the

southern United States. For 20 years, I spent countless hours in the field learning about historic puma and jaguar occurrences in the United States.

6. During my professional career as a wildlife biologist, I have worked on a variety of carnivorous animals. For example, I have conducted research on skunks, puma, bobcat and other mammals, captured and conducted telemetric research on over 100 Florida black bears in northern Florida, and captured and/or conducted telemetric research on nearly 1,000 carnivores in Namibia including cheetahs, leopards, brown hyenas, caracals, servals, and African wild cats. I was first involved with puma and jaguars beginning in 2000 as a technician with the Borderlands Jaguars Project. I worked in various positions associated with pumas and jaguars, including with the nongame branch of the Arizona Game and Fish Department and the Phoenix Zoo. I also worked with Florida panthers (a critically endangered subspecies of mountain lion) as a carnivore biologist with the Florida Fish and Wildlife Conservation Commission. In addition, I analyzed data and advised on puma management for the Guadalupe Mountains National Park in Texas. I have also worked with houndsmen, tracking and capturing pumas in Arizona for research purposes.

7. In 2008, I co-founded Conservation CATalyst, 501(c)(3). Accordingly, I have been a member of Conservation CATalyst since its founding. Conservation CATalyst organizes and conducts research domestically and internationally on little-known carnivores, or those in conflict with humans

8. Through Conservation CATalyst, I am overseeing and/or advising on wild

felid research projects in five countries. In Arizona, I am currently the Primary Investigator on a research project accumulating Indigenous Traditional Ecological Knowledge on pumas and jaguars throughout the Southwest.

9. As a Fulbright fellow, my Ph.D. research focused on ecology and conservation of caracals and small felids on Namibian farmlands. I sought to collaboratively develop locally acceptable solutions to reduce conflicts and mitigate livestock depredation by carnivores.

10. During the course of my research, I collected data from 34 radio-collared and 208 necropsied caracals on working farms throughout Namibia from 2010 to 2016. My research revealed a heavily hunted population experiencing extensive persecution. None of my study animals escaped human-induced mortality and the result was a population highly skewed towards subadult dispersers. That pattern closely mirrors the current circumstances regarding pumas (mountain lions) in Arizona.

11. I estimated demographic parameters of caracals, including survival and reproduction values, to generate life history schedules and Kaplan-Meier survival curves to determine whether caracal populations on southern Namibian farmlands can withstand high anthropogenic mortality. I found that Southern Namibia stock farms represent a mosaic of population sinks for caracals where populations rely on immigration from adjacent areas to persist. The demography models done by Dr. Jim Sanderson, Dr. Martin Taylor and Dr. Zach Gelbaum reveal a similarly unsustainable puma population that will not persist without steady rates of immigration.

12. Immigration of pumas from tribal lands and from Mexico is known to be

significantly impeded from overhunting. In addition, the installation of the final segments of the border wall (predicted by early 2027), will prevent immigration of pumas from Mexico, a known source population. As barriers increase, opportunities for pumas to immigrate into Arizona decrease. Thus, the Arizona population will no longer be stable.

13. It is well-documented in scientific literature that high persecution pressure of wild felids shifts population structure towards young dispersers. The demography of puma populations in Arizona, much like caracals in my research area, is highly skewed towards subadult dispersers. High turnover rates create an abundance of younger, more conflict-prone animals that are also more prone to local extirpation.

14. I have reviewed the demography models done by Dr. Jim Sanderson, Dr. Martin Taylor and Dr. Zach Gelbaum and agree with their conclusions that current rates of mortality in Arizona are unsustainable. Without changes in management, puma populations will be nonviable in the near future. Any catastrophic event (such as fire, drought, etc.) could further decrease the puma population and could intensify a population crash. It is also evident from these models that pumas exist in a source-sink dynamic metapopulation, sustained by immigration. This is extremely problematic as barriers to immigration, such as border infrastructure, road infrastructure and urban sprawl, increases annually throughout the Southwest.

15. Pumas once roamed throughout most of the contiguous forty-eight United States. However, human persecution efforts have resulted in virtual elimination of pumas from the eastern two-thirds of their former range. Today, viable, breeding populations are found in just 16 remaining states. At present, Arizona is considered amongst the laxest regarding puma hunting regulations.

16. Hunting is not the only source of mortality for pumas in Arizona. Mortality is also caused by collisions on roads, diseases, starvation, poisoning, and interspecific competition. Puma mortality from poisoning, diseases, and collisions also appears to be increasing throughout the Southwest.

17. I have been fortunate to have multiple encounters with pumas in Arizona, several while alone, and these are memories I will cherish for the rest of my life. My aesthetic, recreational, educational, scientific, spiritual, and photographic interests in pumas have led me to continue my efforts to conserve, coexist with, and to educate the public about these magnificent predators.

18. I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.

Executed at Sierra Vista, Arizona, on July 28, 2026

_____

Dr. Aletris M. Neils

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IN THE SUPERIOR COURT OF THE STATE OF ARIZONA
IN AND FOR THE COUNTY OF MARICOPA

CENTER FOR BIOLOGICAL DIVERSITY, ROBIN SILVER, Plaintiffs, vs. ARIZONA GAME AND FISH COMMISSION; ARIZONA GAME AND FISH DEPARTMENT; TOM FINLEY, in his capacity as Director of the ARIZONA GAME AND FISH DEPARTMENT; Defendants.	Case No. **DECLARATION OF ANGELA DARNELL BAKER** Assigned to:

I, Angela Darnell Baker, declare as follows:

1. The facts set forth in this declaration are based on my personal knowledge and, if called as a witness, I could and would competently testify thereto under oath. As to those matters that reflect an opinion, they reflect my personal and professional opinion on the matter.

2. I spent time in Arizona growing up as my grandparents lived there during the winters ("snowbirds" from South Dakota). I then chose to attend college at Arizona State University for my freshman year.

3. I obtained my bachelor's degree from Brigham Young University, with a Bachelor of Science in Biology. I obtained my Master of Science degree from the Humboldt State University in 2012, majoring in Natural Resources, Wildlife emphasis. I obtained a PhD from the University of Louisiana at Lafayette in 2016 in Environmental and Evolutionary Biology. I have received multiple awards, fellowships, and grants for my research including the University of Louisiana's Board of Regents Doctoral Fellowship, Phi Kappa Phi Honor's Society, and the Institute for Wildlife Studies.

4. I have taught courses at multiple academic universities, including Humboldt State University (HSU)/California State Polytechnic University, Humboldt, the University of Louisiana (UL), and California State University (CSU), Sacramento. I was a graduate teaching assistant in Wildlife Techniques for three semesters at HSU. I was a graduate teaching assistant in Mammalogy for two semesters at UL. I was a full-time instructor in the Wildlife Department at HSU from 2017–2018 teaching the following courses: Conservation and Management of Mammals, Wildlife Techniques, and Ethology (Animal Behavior); I also taught part-time for HSU (now Cal Poly Humboldt) for the 2023–2024 school-year. I have been teaching one or two courses each semester at CSU, Sacramento since 2020 including Biogeography, Behavioral Ecology, Advanced Ecology, and Science Communication, all graduate courses. I have also been invited to guest lecture at several universities.

5. My entire academic career as a wildlife biologist has been focused on carnivores (mammals in the Order Carnivora). My master's research focused on the interactions of African wild dogs with their two main competitors, African lions and spotted hyenas. My PhD research focused on the impacts of humans on carnivores in southern Arizona, where I worked in Saguaro National Park, Organ Pipe Cactus National Monument, and a Conservation Easement in the foothills of the Chiricahuas, then owned by the Cuencos Los Ojos Foundation.

6. Pumas (*Puma concolor*) were a main focus of my PhD research in Arizona.

7. I examined how human presence, recreational activities, and infrastructure in protected areas impacted the entire carnivore community, including pumas as the umbrella species in these desert ecosystems. My work included non-invasive methods including remote cameras, track plates, and scat and sign surveys, and I conducted occupancy modeling to determine which factors were most impactful to each carnivore species. I found that pumas in these areas avoided hiking trails and roads—even low-traffic, dirt roads. They also had a negative relationship with our Human Disturbance Index (and index of how frequently humans were present in/using the area). Overall, I found pumas to be one of the carnivores most sensitive to human disturbance and infrastructure of the entire carnivore community in southern Arizona.

8. Immigration of pumas from tribal lands and from Mexico is known to be significantly impeded, from overhunting and from the installation of the border wall, respectively.

9. It is well-documented in scientific literature that high persecution pressure of wild felids shifts population structure towards young dispersers. The demography of

puma populations in Arizona is highly skewed towards subadult dispersers. High turnover rates create an abundance of younger, more conflict-prone animals that are also more prone to local extirpation.

10. I have reviewed the demography models done by Dr. Jim Sanderson, Dr. Martin Taylor, and Dr. Zach Gelbaum, and agree with their conclusions that current rates of mortality in Arizona are unsustainable. Without changes in management, puma populations will be nonviable in the near future.

11. My aesthetic, recreational, educational, and scientific interests in pumas have led me to continue my efforts to conserve, coexist with, and to educate my students and others about these fascinating predators.

12. I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.

Executed at Sacramento, CA on August 2, 2026

Angela Darnell Baker