

BEFORE THE OHIO DEPARTMENT OF NATURAL RESOURCES
PETITION TO END COLLECTION OF UNLIMITED NUMBERS OF WILD COMMON
SNAPPING AND SOFTSHELL TURTLES



CENTER FOR BIOLOGICAL DIVERSITY
OHIO RIVER FOUNDATION
OHIO WETLANDS ASSOCIATION
KENT ENVIRONMENTAL COUNCIL
FRIENDS OF THE RAVINES
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Notice of Petition

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The Center for Biological Diversity, Ohio River Foundation, Ohio Wetlands Association, Kent Environmental Council, Friends of the Ravines and Dr. Lisa Regula Meyer hereby ask the Ohio Department of Natural Resources to propose regulations to end the wild collection of unlimited numbers of common snapping and softshell turtles in the state. Collection of wild turtles intensifies the effects of water pollution, habitat loss, road mortality and incidental take from fishery devices, which are already contributing to turtle declines in the state and across the country.

The author of the petition is Center for Biological Diversity (“Center”), which is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center is supported by over 1 million members and online activists throughout the United States, including approximately 45,000 members and supporters in Ohio. The Center and its members are concerned with the conservation of rare wildlife, including turtles, and their essential habitats.

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I. INTRODUCTION

Turtles are the oldest living group of reptiles on earth with fossil evidence suggesting that turtles were alive over 200 million years ago. Although turtles thrived on this planet for millions of years, turtles are now among the most threatened of any major group of vertebrates. Forty percent of all turtles are threatened according to the International Union for Conservation of Nature (Rhondin & van Dijk 2010).

Wild collection is the primary driver of turtle declines across the world (Bohm et al. 2013). Overexploitation has caused population declines in almost all turtle species that are now extinct, critically endangered, or rare (Klemens and Thorbjarnarson 1995) and it contributes to population declines that are also caused by water pollution, habitat loss, road mortality and other threats (Moll and Moll 2004; Schlaepfer et al. 2005). Turtles are beneficial scavengers that feed on water plants, dead animals, snails, aquatic insects and crayfish. As such, population declines due to overexploitation can cause changes in energy flow, nutrient cycling and food web structure (Mali et al. 2014).

In Ohio, 12 species of turtles can be found (ODNR undated). Although most of Ohio's turtle species enjoy protection from wild collection, Ohio allows unlimited numbers of common snapping turtles and softshell turtles (greater than 11 inches in length) to be taken from the wild from July 1 - December 31. OAC 1501:31-25-04.

Common snapping turtles and softshell turtles are wild caught in large numbers in Ohio and across the country both for food and for the pet trade. Historically, trappers in Ohio caught extremely high numbers of turtles, with one account describing a trapper catching 120 turtles in just two days (Pittsburgh Press 1966). Because of overexploitation and other threats, turtle populations have declined and it is simply impossible for trappers to collect at historical levels. But the harvest that remains poses a significant risk to the future of Ohio's populations of common snapping turtles and softshell turtles.

For the reasons explained below, Petitioners request that the Ohio Department of Natural Resources grant this petition to limit wild collection of the state's wild turtles.

II. BACKGROUND

A. The Commercial Turtle Trade in the U.S.

The United States has the highest richness of turtles in the world with 89 species and subspecies of turtles (Rhondin & van Dijk 2010; Bohm et al. 2013), and it has developed into a significant exporter of wild-collected adult turtles. In the last five years, more than 17 million wild caught turtles were exported from the United States. Most turtles harvested in the United States are exported to supply food and medicinal markets in Asia, where turtle consumption rates have soared and where native populations of turtles were rapidly depleted (Klemens and Thorbjarnarson 1995; Gibbons et al. 2001; Reed and Gibbons 2003). China is the biggest consumer of turtles and has long commercially pursued their native turtles as food and

Traditional Chinese Medicine, driving most populations to depleted levels and even extinction in the wild (Behler 1997; Chen et al. 2009). Indeed, most turtle species in Vietnam and southern China are endangered and turtles can no longer be found in the wild in Vietnam (Kiestler and Juvik 1997). Asian cuisine prizes America's softshell turtles in particular because they appear similar to endemic Asian softshell turtle species that have been depleted by the food trade (Christiansen 2008).

Large scale turtle harvest in the United States is organized as a pyramid scheme including trappers, middlemen, and dealers (Mali et al. 2014). Turtle dealers usually have an interstate network of several hundred employees capable of exporting thousands of turtles a year (Mali et al. 2014). Large adults are the most valuable on the meat market and are a primary target of commercial turtle trappers (Close and Seigel 1997; Ceballos and Fitzgerald 2004). Yet the adult life stage is the most sensitive to harvest (Heppell 1998; Congdon et al. 1993; Congdon et al. 1994; Zimmer-Shaffer et al. 2014).

The available data on turtle exports from the United States indicate that export-driven exploitation has targeted the common snapping turtle (*Chelydra serpentina*), Florida softshell (*Apalone ferox*), and spiny softshell (*A. spinifera*), in particular. Some of the smaller hard-shelled turtle species are also targeted, including diamondback terrapins and map turtles. While export levels of freshwater turtles from the United States appear variable, the long-term trend shows an increase in trade for most species (Weissgold 2010). Louisiana has become a huge exporter of wild caught turtles; the number of wild caught turtles exported from Louisiana increased from 80,050 in 2008 to 6,386,030 in 2009 and has remained high (Mali et al. 2014).

The federal export data likely underestimates the number of wild harvested turtles in the U.S. for two main reasons (Colteaux and Johnson 2016, *in press*). First, an unknown biomass of turtle meat is processed and canned domestically before export, none of which is required to be recorded by the U.S. Fish and Wildlife Service. Second, the distinction between wild and farm stock in export records may be tenuous because no regulations prohibit wild-caught turtles from being exported as farm stock after being transferred to farm ponds (Colteaux and Johnson 2016, *in press*).

B. Wild Turtle Collection in Ohio

In Ohio, turtles are primarily found along Lake Erie and larger rivers such as the Scioto River (Lipps 2014). Four families of turtles, comprising 12 species, live in Ohio:

- Family Chelydridae (common snapping turtle)
- Family Emydidae (painted, spotted, Blanding's, northern map, Ouachita map, false map, eastern box and red-eared slider)
- Family Trionychidae (midland smooth and eastern spiny softshell turtles); and
- Family Kinosternidae (eastern musk turtle).

The Blanding's turtle and spotted turtle are listed as state threatened and the Ouachita map turtle and eastern box turtle are "species of concern" (ODNR 2016; ODNR undated).

The geographic distribution of Ohio's reptiles, including turtles, was summarized by Wynn and Moody (2006). They reported the most current record for each species by county. Twelve species of turtles were represented by 408 county distribution records. Of those, only 37 percent represented specimens collected since 1976. The midland smooth softshell (*Apalone m. mutica*), a species of apparent limited distribution in Ohio, had only been documented in nine Ohio counties and five of those records were more than 50 years old. The eastern spiny softshell (*Apalone s. spinifera*) had been confirmed in 55 of Ohio's 88 counties, but 71 percent of its Ohio distribution records were more than 30 years old. To address the paucity of recent turtle distribution data, Davis and Krusling (2010) conducted research on softshell turtles in Ohio in 2010. They discovered extended distributions of smooth softshell turtles in the Great Miami and Scioto Rivers and documented the spiny softshell in the Wabash River.

Ohio continues to allow unlimited commercial capture of three turtle species in the state: common snapping turtles, spiny softshell turtles and smooth softshell turtles. OAC 1501:31-25-04. Ohio recently modified its regulations as a result of efforts of the "Turtle Regulation Advisory Workgroup," which included members of the Ohio Trappers Association but no nonprofit conservation organizations (*see, e.g.*, Ohio DNR 2016b; Ohio DNR 2015). Ohio now prohibits collection of turtles with a straight-line carapace length of less than eleven inches. OAC 1501:31-25-04(B)(3). And Ohio has a closed season from January first through the last day of June each year. OAC 1501:31-25-04(A). Although these changes are important steps in the right direction, more restrictions are needed because Ohio has no bag limits.

Ohio requires commercial turtle harvesters to maintain records, including the number, location of capture and length of turtles taken from the wild by species. OAC Ann. 1501:31-25-04. However, because Ohio has no *reporting* requirements, no data on the number of turtles collected in the state is available.

To address this information gap, Ohio asked purchasers of annual fishing licenses whether they had harvested snapping or softshell turtles in the last five years, and whether they sold any turtles that they harvested. Survey responses revealed that 1.5 percent of license holders harvested turtles in the last five years, and about 40 percent of those harvesters indicated that they sold turtles. Approximately 4,000 license holders indicated that they had sold turtles in the last five years (Carter 2014). Given that these harvesters have no bag limits, the harvest could pose a significant threat to turtles without state officials ever knowing, given the lack of reporting requirements or population monitoring.

In 2014, Ohio asked its wildlife officers to conduct a records inspection of sales, export, and harvest records of commercial facilities in Ohio that may handle snapping and softshell turtles. The wildlife officers were unable to identify any commercial turtle dealers in the state. Yet a market for turtles in the state continues; turtle meat sells for approximately \$0.75 per pound (*see, e.g.*, Ohio Sportsman 2014). Wildlife officers documented that turtle meat sold in "Jungle Jim's International Market" -- with two stores in Ohio -- is acquired from out-of-state dealers. (Records documenting the wildlife officers' inspections are on file with the author.)

Ohio does not allow its live, wild caught turtles to be exported. OAC 1501:31-25-04(D) ("It shall be unlawful to export live snapping turtles or live softshell turtles taken from the wild

in Ohio, except for live snapping turtles or live softshell turtles possessed under the authority of a commercial or noncommercial propagating license issued under section 1533.71 of the Revised Code.”). However, export of turtle meat or parts is allowed, as well as sale of live turtles within the state. *Id.* Turtle trapping forums discuss selling meat caught in Ohio over state lines (e.g. Paul Dobbins’ Trapper Talk 2014).

C. Natural History and Status of Common Snapping Turtles

The common snapping turtle, an Ohio turtle species subject to unlimited collection, is a large mostly aquatic turtle, weighing as much as 50 pounds (Ernst and Lovich 2009, p. 113-14). The common snapping turtle occurs in the United States, Canada, throughout Mexico, and as far south as Ecuador (NatureServe 2015). In Ohio, common snapping turtles are found nearly statewide (ODNR undated).

Snapping turtles occupy all types of freshwater habitats, especially those with soft mud bottoms and abundant aquatic vegetation or submerged brush and logs (Ernst and Lovich 2009, p. 115). The species exhibits good tolerance of altered habitats (NatureServe 2015). Common snapping turtles have a diverse diet and feed on insects, crayfish, fish, snails, earthworms, amphibians, snakes, small mammals, and birds. Up to a third of their diet, however, is made up of aquatic vegetation.

The species is characterized by delayed female maturation, relatively low fecundity, low recruitment, and long generation times. Snapping turtles commonly experience low reproductive success due to extensive predation on their eggs (NatureServe 2015). In Algonquin Park, for example, the probability of a snapping turtle embryo surviving to sexual maturity is less than 0.1% (COSEWIC 2008).

Although common snapping turtles are not significantly threatened overall, urbanization and excessive harvest has severe local impacts (NatureServe 2015; van Dijk 2016a). Females are especially susceptible during nesting season, as crossing roads exposes them to injury and death from automobile strikes and makes them easy prey for humans who take them for food (Ernst and Lovich 2009, p. 113). Other threats include water pollution, drainage of water bodies, water impoundment and channelization, and development leading to increased raccoon populations (Ernst and Lovich 2009, p. 137).

The common snapping turtle is widely exploited for local, subsistence collection, as well as commercial trade for local, national, and international consumption (van Dijk 2016a). The flesh of the snapping turtle is eaten throughout its range and a soup can be made from it (Ernst and Lovich 2009, p. 137). In the United States, snapping turtles are sold at Asian seafood markets and Asian restaurants. They are also sold as pets, and juvenile snapping turtles ship from online dealers for about \$70 each (http://www.reptilestogo.com/For_Sale_Common_Snapping_Turtle_Baby.htm; <http://myturtlestore.com/juvenile-snapping-turtles-for-sale/>).

Although snapping turtle populations have been known to be vigorous throughout much of the species’ range, long-term persistent take makes the species vulnerable to decline (Harding

and Holman 1990; Tucker and Lamer 2004; USFWS 2016). To be sure, some populations cannot withstand even minimal exploitation without undergoing a decline in numbers (Brooks et al. 1991; Brooks et al. 1988). Life-history models indicate that only slight increases (0.1) in annual adult mortality rate (such as from road mortality or harvesting) will cause a snapping turtle population to be halved in under 20 years (COSEWIC 2008; Congdon et al. 1994).

For example, harvesters have reported declining numbers of turtles in harvested areas for snapping turtles on the upper Mississippi River (Paisley et al. 2009). Population recovery potential is low, due to a lack of an effective density-dependent response in reproduction and recruitment (Brooks et al. 1991; Galbraith et al. 1997). Indeed, in Michigan, snapping turtles were intensively trapped for 2-3 years in the 1980s, which greatly reduced populations. Collection was then prohibited and by 2009, populations were approaching pre-impact levels, suggesting a 25-30 year recovery period after depletion (van Dijk 2016a).

While local declines have been documented, the species has not reached a 30 percent decline over 50 years (van Dijk 2016a). As such, common snapping turtles are included on the IUCN Red List as a species of “least concern” (van Dijk 2016a). Local declines of snapping turtles in the Toledo, Ohio area were noted in the 1990s (Pollick 1992).

Collection of snapping turtles from the wild and captive production in turtle farms for export to East Asia increased consistently and substantially in recent years, from about 10,000 common snappers declared as exported from the United States in 1999 to over 1 million annually in more recent years (van Dijk 2016a; Weissgold 2010; USFWS 2016). Common snapping turtles are second only to red-eared sliders in terms of number of live individuals exported each year (Adkins Giese 2011). A recent study calculated that U.S. harvest of common snapping turtles has increased 209 percent since 1998 (Colteaux and Johnson 2016, *in press*).

As for wild-caught live common snapping turtles, nearly 200,000 were exported from 2006-2010. Export data shows that exports of wild caught common snapping turtles increased dramatically with nearly 600,000 caught and exported in the last five years. Several huge individual shipments to China have occurred in the last decade, including 20,000 in 2011; 24,250 in 2011; 35,000 in 2012; two shipments in excess of 10,000 in 2013; and shipments of 20,000, 14,950 and 11,000 in 2015. More than 200,000 live, wild-caught common snapping turtles were exported annually in each of 2012 and 2014.

According to a recent study, for the 16 years between 1998 and 2013, an estimated 348,529 snapping turtles were reported as commercially harvested among 11 states that provided harvest data (Colteaux and Johnson 2016, *in press*). The total annual harvest across reporting states was positively correlated with the number of wild caught live individuals exported (Colteaux and Johnson 2016, *in press*).

On May 23, 2016, the U.S. Fish and Wildlife Service announced a final rule to regulate and monitor international trade of common snapping turtles and three softshell turtles. The rule, which responds in part to a 2011 request from the Center for Biological Diversity documenting the harms of the turtle trade, adds the turtles to Appendix III of the Convention on International

Trade in Endangered Species of Wild Fauna and Flora (CITES). This designation is designed to curb overexploitation of these freshwater turtles for Asian food and medicinal markets.

Wild capture of common snapping turtles is prohibited in some states (including Maryland, Michigan and New York) or strictly regulated (including Alabama, Texas). But some states still allow unlimited commercial take (Kentucky, Missouri, Ohio, South Carolina, and Tennessee) (Nanjappa and Conrad 2011; van Dijk 2016a). As of the 2015 commercial harvest season, 19 of the 37 states that make up the native range of the snapping turtle in the U.S. were open to commercial harvest (Colteaux and Johnson 2016, *in press*).

D. Natural History and Status of Softshell Turtles

Three species of softshell turtles exist in the United States: Florida softshell, spiny softshell and smooth softshell. The spiny and smooth softshells are found in Ohio.

The smooth softshell turtle has a smooth upper shell that lacks small bumps or scutes and is most often observed in the open waters of medium-sized to large rivers and streams with moderate to fast currents and visibility varying from clear to cloudy (Ernst and Lovich 2009, p. 614). Unlike the smooth softshell, the spiny softshell turtle has small bumps or spines on the front of the upper shell and small ridges on each side of the snout. As with the smooth softshell, the spiny softshell is primarily a riverine species. The spiny softshell, however, also inhabits ecotonal areas, small creeks, marsh rivelets, roadside and irrigation ditches, farm and natural ponds, bayous, oxbows, large lakes, and impoundments.

The smooth and spiny softshells are characterized by delayed female maturation, a small clutch size (but multiple clutches), high neonate parental involvement, and low neonate survivorship. Males bask in shallow water and nests are often in close proximity to each other, facilitating collection. They feed on fish, crayfish, salamanders, tadpoles, frogs, snails, and aquatic insects.

Softshells can be locally common with high reproductive potential by turtle standards (van Dijk 2016b,c). The smooth softshell is reportedly extirpated from Pennsylvania and possibly extirpated from West Virginia. As earlier as 1968, observed declines in softshells in Ohio were noted (Toledo Blade 1968).

The presumed primary threats to both smooth and spiny softshell turtles are overexploitation and habitat loss or habitat degradation, some predation and bycatch, and periodic natural flooding. The release of pesticides and both industrial and household chemicals into the waterways of softshells is harmful, and softshells have now been found to contain many heavy metal and PCB contaminants (Ernst and Lovich 2009, p. 634).

International trade in smooth softshell turtles is small. Less than 500 wild caught smooth softshell turtles were exported from 2009-2014 (Weissgold 2010; USFWS 2016). These numbers are down from previous years, likely reflecting the rarity of the species.

In contrast, the spiny softshell is widely traded internationally as live specimens for the pet trade and consumption. The impact of commercial exploitation appears to be undocumented but bycatch in commercial fisheries and recreational fishing is suspected to be a factor in the observed decline of some populations (Brown et al. 2012; van Dijk 2016c).

In fact, spiny softshells have long been exploited for consumption and more recently for export of adults for food and of hatchlings as pets and for Asian farming operations (van Dijk 2016c). As for spiny softshells declared as “wild caught,” 40,000 were exported from 2006-2010 and 35,000 were exported in the last five years. After years of high exportation in 2012 and 2013 -- with more than 12,000 wild-caught spiny softshells exported each of those years -- export numbers have sharply declined, which may reflect scarcity. Turtle trappers exported only 4,105 wild-caught spiny softshells in 2014 and 660 in 2015.

The smooth softshell is subject to a variety of state laws and regulations (van Dijk 2016b) and has endangered status in Illinois (Illinois Endangered Species Protection Board 2015). The spiny softshell is considered “vulnerable” in Florida, Alabama, North Carolina, and Montana, and it is considered “imperiled” in South Dakota, New York, and Virginia (NatureServe 2015; North Carolina Wildlife Resources Commission 2014; New York Dept. of Environmental Conservation 2007). It is threatened in Vermont (Vermont Fish and Wildlife Dept. 2015). It is managed as a nongame resource across much of the United States (van Dijk 2016c). Softshell turtles are included on the IUCN Red List as a species of “least concern” (van Dijk 2016b,c).

Along with the common snapping turtle and the Florida softshell turtle, the smooth and spiny softshell turtles were added to CITES Appendix III in May of 2016.

II. JUSTIFICATION FOR THE REQUESTED RULEMAKING

A. Wild Turtle Populations Cannot Withstand Unlimited Commercial Collection

Natural populations of turtles are characterized by a suite of life history characteristics that predispose these populations to rapid declines when subject to wild collection (Congdon et al. 1993, 1994; Galbraith et al. 1997; Heppell 1998). Among these characters are delayed maturity, dependence on high annual survivorship of adults, and high natural levels of nest mortality (Reed and Gibbons 2003).

Removing even a few adult turtles from a population can have effects lasting for decades because each adult turtle removed eliminates the reproductive potential over a breeding life that may exceed 50 years (Brooks et al. 1991). For example, a modest harvest pressure (10% per year for 15 years) of common snapping turtles may result in a 50% reduction in population size (Congdon et al. 1994). Indeed, stable turtle populations are dependent on sufficient long-lived breeding adults to offset the effects of high egg and nestling mortality and delayed sexual maturity (Congdon et al. 1993; Wilbur and Morin 1988).

As such, scientists have repeatedly documented that freshwater turtles cannot sustain any significant level of harvest from the wild without leading to population declines (Ernst et al.

1989; Congdon et al. 1993, 1994; Galbraith et al. 1997; Heppell 1998; Gibbons et al. 2000; Reed and Gibbons 2003; Burke et al. 2000; Gamble and Simons 2004; Brown et al. 2011; Zimmer-Shaffer et al. 2014). Indeed, the Ohio Department of Natural Resources concluded after reviewing “multiple research papers from other states” that “no data suggests that any turtle species can sustain long-term harvest of adults without population decline” (Ollis 2014) (citing Congdon et. al 1994; Brooks et. al 1988, 1991; Crouse et. al 1987; Doroff and Keith 1990; Iverson (unpublished)).

Congdon et al. (1994) concluded that carefully managed sport harvests of some populations may be sustainable, but “commercial harvests will certainly cause substantial population declines.” After populations are depleted by overharvest, they can take decades to recover (Brown et al. 2011). Recovery is slower in turtles than traditionally managed species because decreased density does not lead to higher reproductive outputs, faster growth, or higher survivorship (Lipps 2014).

Life history traits not only constrain turtles in their response to harvest but also mask early detection by observers. In contrast to “traditional” managed wildlife and fisheries species, where the effects of management measures become measurable within years, the time scale of turtle life history results in exploitation effects becoming apparent and continuing to have effects for decades (van Dijk 2010).

While Ohio has a closed season to protect breeding turtles, it has no bag limits. Moreover, Ohio allows trappers to collect the biggest turtles because of its 11-inch minimum size limit, which took effect in spring of 2016 (Sandusky Register 2016). Previously, Ohio prohibited harvest of turtles less than 13-inches long, based on “[c]urrent research indicat[ing] that 10-12 inch female snapping turtles have the greatest reproductive potential and make the greatest contribution to the next generation” (ODNR 2015b). Indeed, because turtles take so many years to reach sexual maturity and because larger turtles lay more eggs, the largest turtles are the most valuable to the population in terms of reproductive potential. As such, this recent regulation change fails to protect many of the most reproductively important individuals. To prevent population declines, the largest turtles need to be protected from harvest (*see, e.g.,* Outdoor News 2012).

Zimmer-Shaffer and others (2014) gathered demographic rates from the literature for snapping turtles (*Chelydra serpentina*), smooth softshells (*Apalone mutica*), and spiny softshells (*Apalone spinifera*), and developed deterministic, density-independent, stage-based matrix models to assess turtle population response to plausible harvest rates estimated from field sampling. When the scientists applied plausible, field-estimated annual harvest rates under mean demographic rates, populations decreased for snapping turtles in all instances except when harvesting only juveniles at the minimum harvest rate. For softshell turtles, under mean and minimum demographic rates, no field-estimated harvest could be sustained. For snappers and softshells, harvest was sustainable only when demographic rates were at the maximum values, which are highly improbable to occur frequently in the wild. Adult turtles were the most important segment of the population demographically. These results corroborate the findings of other studies which indicate that even low annual harvest rates may have detrimental effects on the long-term sustainability of turtle populations at localized scales.

Ohio's authorization of unlimited collection of common snapping turtles and softshells poses a risk to other species too. Scientists have repeatedly documented incidental mortality from trapping for common snapping and softshell turtles (Fratto et. al. 2007; Barko et al. 2004; Braun and Phelps 2016).

To be sure, Ohio law allows turtle collectors to deploy an unlimited number of hoopnets to capture freshwater turtles, as long as they have escape ring of at least six inches in diameter. OAC 1501:31-25-04(C). Hoopnets range in length but most are long collapsible cylinder-shaped wire mesh or webbed netting funnel traps. The narrowing throat is open on one end to allow turtles and other aquatic animals to enter and not turn around to escape. The trap is baited with fish, stretched and weighted to the stream floor to capture hungry wildlife. These devices are capable of capturing all aquatic animals in the trap location including fish, aquatic mammals (such as beaver, muskrat, otter, and mink), snakes and state and federal threatened and endangered species. Even when partially submerged to allow captured animals to breathe, the likelihood of these traps drowning incidentally-captured wildlife is significant due to unpredictable stream hydrology (rising waters from rain events), instability of trap design, and weight and movement of captured animals. Hoopnets and other turtle collecting devices have also been known to capture aquatic migratory birds that are protected under the Migratory Bird Treaty Act, 16 U.S.C. § 703.

In addition, turtle collectors often misidentify protected species that appear similar to non-protected turtles. The U.S. Fish and Wildlife Service has documented turtle trading violations in Ohio, which have led to convictions under the Lacey Act (USFWS 2005). Game wardens are not often fully trained to distinguish most aquatic turtle species, and face difficulty enforcing the law when encountering collectors in the field.

In Ohio, the Blanding's turtle and spotted turtle are listed as state threatened and the Ouachita map turtle and eastern box turtle are "species of concern" (ODNR 2016; ODNR undated). Protected aquatic turtles could be incidentally killed or captured by commercial turtle collectors, and restrictions on commercialization of turtles in Ohio would likely lead to less incidental take of nontarget species.

The commercial turtle trade not only depletes wild turtle populations, but also carries the risk of introducing diseases, upsetting ecological balances, and causing genetic pollution of resident native turtle populations (van Dijk 2010).

B. Turtle Meat Poses a Human Health Risk

A string of published scientific evidence demonstrates that consumption of turtle meat, the shell, organs and body parts can be harmful to humans. Meyers-Schöne and Walton (1994) examined dozens of scientific studies of pesticide and metal concentrations in freshwater turtles from the 1960s through the 1980s. Over a dozen studies found significant concentrations of numerous pesticides in freshwater turtles in states throughout the south, including aldrin, chlordane, DDT, dieldrin, endrin, mirex, nonachlor, and toxaphene (Meyers-Schöne and Walton 1994). Studies found bioconcentration of mercury and other metals such as aluminum, barium,

cadmium, chromium, cobalt, copper, iron, lead, molybdenum, nickel, strontium, and zinc in turtles in Florida, Georgia and other southern states (Meyers-Schöne and Walton 1994).

Turtles, as apex trophic animals, will bioaccumulate toxins from contaminated prey (Kennish and Ruppel 1998). Because of their longevity, their exposure time to environments with aquatic contaminants is longer, which causes turtles to retain greater amounts of bioaccumulation compared to shorter lived lower trophic animals like finfish (Kennish and Ruppel 1998; Rowe et al. 2008). Turtles that burrow and submerge themselves in contaminated sediment, including snapping turtles and softshell turtles, are likely to have greater levels of aquatic contaminants because their pathway of exposure is greater.

In 1997, Ohio EPA collected snapping turtles from six locations and analyzed meat (muscle), liver and fat tissues for lead, mercury, PCBs and pesticides as part of a special monitoring project (Ohio EPA 2015). Mercury and lead were found in the meat samples taken from four water bodies, resulting in advisories. Specifically, because of mercury contamination, one meal of snapping turtle per week is advised for the Ashtabula River, Black River, Maumee River, and Ottawa National Wildlife Refuge. Snapping turtles taken from the Ottawa River are not safe to eat at all because of lead (Ohio EPA 2015). PCBs and mercury were found at extremely high concentrations in the turtles collected from the turtle advisory locations (*id.*). Dabrowska and others (2006) also found high concentrations of PCBs in tissue and eggs of snapping turtles living in the Ottawa, Maumee, Ashtabula, and Black Rivers.

The Ohio EPA cautions against eating fat or liver tissue from any snapping turtle caught in Ohio, particularly from turtles caught at the turtle advisory locations (Ohio EPA 2015). In addition, in 2004 the EPA issued a national fish consumption advisory for mercury in both private and public waters in Ohio that still remains in effect (USEPA 2004; USEPA 2016).

Given the contamination of Ohio streams and scientific evidence that turtles bioaccumulate high levels of aquatic contaminants, eating wild caught turtles in Ohio poses a human health risk. This provides yet another reason to restrict collection and sale of all wild caught turtles in Ohio.

C. Most States Have Ended This Harmful Practice

Numerous state wildlife agencies have ended commercial collection of native freshwater turtles. For example, North Carolina, Alabama and Mississippi have long banned this harmful practice.

Starting in 2007, the Center for Biological Diversity identified 12 states that still allowed commercial collection of turtles (Arkansas, Florida, Georgia, Iowa, Kentucky, Louisiana, Missouri, Ohio, Oklahoma, South Carolina, Tennessee, and Texas). We submitted administrative rulemaking petitions requesting each to prohibit commercial harvest of freshwater turtles. The petitions and background information on the commercial harvest of freshwater turtles can be found on the Center's website at:

http://www.biologicaldiversity.org/campaigns/southern_and_midwestern_freshwater_turtles/index.html .

In response to the Center's advocacy and administrative rulemaking requests, in 2007 the Texas Parks and Wildlife Commission voted to ban commercial collection of native Texas turtles on public lands and waters, with an allowance for commercial capture from private property for a few more common species. In 2010, no wild caught turtles were exported from Texas (Mali et al. 2014). Oklahoma banned commercial harvest of turtles from public waters but commercial harvest still exists in private waters. 29 Okl. St. § 6-204; OAC § 800:15-9-3. Florida closed commercial turtle harvest in both public and private waters. In South Carolina, it is now unlawful to remove more than 10 turtles from the wild at one time and more than 20 turtles in one year, for nine native species. In 2012, Georgia set annual catch limits of 100 turtles per year for the Florida softshell turtle, spiny softshell turtle and river cooter; 300 per year for the common snapping turtle, painted turtle, eastern mud turtle and loggerhead musk turtle; and 500 per year for the pond slider. In 2012, Alabama banned all commercial collection and killing of wild turtles and their eggs in public and private waters. We received no response to our petition from the Ohio Department of Natural Resources.

As individual states close or restrict turtle trapping within their borders, harvest pressure increases on the remaining states without restrictions (Turtle Survival Alliance 2009; Mali et al. 2014). In addition, turtle poachers often illegally trap in states with restrictions and claim that the turtles came from an adjacent state where trapping remains legal (*id.*). In that way, overexploitation can more easily occur in regions with inconsistent state regulation of turtle trapping.

Of the states that share a border with Ohio (Michigan, Indiana, Kentucky, West Virginia, and Pennsylvania), **none** allow unlimited commercial collection of turtles. Michigan, Indiana, and West Virginia prohibit all commercial collection of turtles and personal collection is regulated with bag limits and closed seasons. FO-224.13 (Michigan); 312 IAC 9-5-7 (Indiana); W. Va. Code § 20-2-11 (West Virginia). Kentucky prohibits sale of all native wildlife, including turtles, but has no limit on personal collection of softshell turtles and common snapping turtles. 301 KAR 2:081. Pennsylvania allows permitted commercial collection of snapping turtles with closed seasons, bag limits and reporting requirements. 58 Pa. Code Section 79.5; 58 Pa. Code Section 79.3.

If Ohio restricts commercial trapping of turtles, as all of its bordering states, the region would be better equipped to protect its turtle populations by making clear to turtle traders that trade is strictly regulated and enforced in the region.

III. PROPOSED RULE AMENDMENT

Under our proposed rule amendment, the bold and underscored language, which provides a daily bag limit for snapping turtles and softshell turtles would be added to OAC 1501:31-25-04(B)(3). In addition, the bold and strikethrough language below, which authorizes the sale of wild-caught turtles in Ohio, would be deleted from OAC 1501:31-25-04(D)(1).

1501:31-25-04. Reptiles and amphibians. [Effective: 07/01/2016.]

(A) Season dates (1) It shall be unlawful for any person to take bullfrogs or green frogs from May first through six p.m. on the second Friday of June each year.

(2) It shall be unlawful for any person to take snapping turtles or softshell turtles from January first through the last day of June each year.

(3) It shall be unlawful to take, collect or possess the eggs of snapping turtles or softshell turtles unless legally acquired from outside the state, or propagated under the authority of a commercial or noncommercial propagating license issued under section 1533.71 of the Revised Code.

(B) Bag and size limits (1) It shall be unlawful for any person to take more than fifteen bullfrogs or green frogs, singularly or in the aggregate, in any one day.

(2) It shall be unlawful for any person to possess more than fifteen bullfrogs or green frogs, singularly or in the aggregate, at or between the place where taken and a residence or place of lodging.

(3) It shall be unlawful for any person to take **more than [insert bag limit] of** snapping turtles or softshell turtles, **singularly or in the aggregate, in any one day** ~~with a straight-line carapace length of less than eleven inches.~~

(4) It shall be unlawful for an Ohio resident to take or possess more than four total individuals of each species of collectable reptiles or collectable amphibians from the wild in Ohio.

(5) It shall be unlawful to take any reptile or amphibian not listed as a collectable reptile or collectable amphibian from the wild in Ohio except bullfrogs, green frogs, snapping turtle and softshell turtles.

(6) It shall be unlawful to take or possess any reptile or amphibian from any area under agreement with, owned, controlled or administered by the division of wildlife, except for:

(a) Persons who have received written permission from the chief of the division of wildlife, provided they carry and exhibit said permission upon request.

(b) Persons lawfully taking bullfrogs, green frogs, snapping turtles and softshell turtles.

(7) It shall be unlawful for a nonresident to take any collectable reptile or collectable amphibian from the wild in Ohio.

...

(D) Permits (1) It shall be unlawful to buy, sell, barter or trade any reptile or amphibian taken from the wild in Ohio **except snapping turtles and softshell turtles.**

(2) It shall be unlawful to export live snapping turtles or live softshell turtles taken from the wild in Ohio, except for live snapping turtles or live softshell turtles possessed under the authority of a commercial or noncommercial propagating license issued under section 1533.71 of the Revised Code.

....

Under state law, the Ohio Department of Natural Resources has a duty to conserve Ohio's wildlife and adopt rules necessary to do so. ORC § 1531.04. It also has a duty to protect endangered species under the federal Endangered Species Act, 16 U.S.C. § 1531, and a duty to enact effective state wildlife laws that discourage interstate commerce of illegally collected wildlife under the Lacey Act, 16 U.S.C. § 701. Consistent with these legal duties and authorities, the proposed rule amendment is intended to protect Ohio's turtle populations by ending unlimited commercial collection

IV. CONCLUSION

Petitioners have summarized the harms caused by the unlimited collection of wild turtles in Ohio. Specifically, Petitioners have demonstrated that wild turtles cannot withstand unlimited commercial collection without facing population declines. In addition, the wild collection of wild turtles to be sold for meat poses a human health risk because of contaminants. Because of the significant harm caused by unlimited commercial collection of turtles, most states have ended or are ending the practice, including all of the states bordering Ohio. Petitioners therefore request that the Ohio Department of Natural Resources present the proposed rule amendment to the Wildlife Council and seek to end unlimited commercial collection of Ohio's wild turtles.

For all the reasons explained above, commercial collection of Ohio's wild turtles must be ended.

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