

BEFORE THE TEXAS PARKS AND WILDLIFE DEPARTMENT
PETITION TO END UNLIMITED COMMERCIAL HARVEST OF FOUR
FRESHWATER TURTLE SPECIES



Texas Spiny Softshell Turtle (*Apalone spinifera emoryi*)
Photo Courtesy Gary M. Stolz, USFWS

CENTER FOR BIOLOGICAL DIVERSITY
LONE STAR CHAPTER SIERRA CLUB
TEXAS RIVERS PROTECTION ASSOCIATION
TEXAS SNAKE INITIATIVE

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Notice of Petition

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Pursuant to Texas Government Code § 2001.021 and 31 Texas Administrative Code § 51.2, the Center for Biological Diversity, Lone Star Chapter Sierra Club, Texas Rivers Protection Association and Texas Snake Initiative hereby petition the Texas Parks and Wildlife Department (“TPWD”) to end the unlimited commercial collection of four species of native freshwater turtles on private lands in the state. Commercial collection of wild turtles contributes to turtle declines in the state and across the country, intensifying the impacts of water pollution, habitat loss, road mortality and incidental take from fishery devices, which already contribute to population declines in the state and across the country.

The Center for Biological Diversity (“Center”) 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 1.3 million members and online activists throughout the United States, including approximately 59,000 members and supporters in Texas. The Center and its members are concerned about the conservation of rare wildlife—including turtles—and their essential habitats.

The Sierra Club's Lone Star Chapter, which encompasses most of the state of Texas, shares the national mission “to explore, enjoy and protect the planet. To practice and promote the responsible use of the earth's ecosystems and resources; to educate and enlist humanity to protect and restore the quality of the natural and human environment.” One of the Lone Star Chapter’s priorities is to protect the state’s wildlife and public lands. Its work is supported by both staff and over 25,000 members in Texas.

The Texas Rivers Protection Association is a non-profit group of paddlers, riparian landowners and river lovers united to:

- Protect the flow, water quality and natural beauty of the rivers of Texas;
- Promote the safe and wise use of Texas rivers;
- Develop an awareness of the rights of the public to use navigable rivers and an awareness of the rights of riparian landowners to be protected from trespass and other intrusions; Promote mutual respect between river users and landowners for each other's legal rights;
- Foster an awareness and respect for diverse natural waterway environments;
- Educate its members and the public concerning conservation and preservation of Texas rivers and streams, and to perform such related educational services within the meaning of Section 501 (c) (3), IRC; and
- Acquire property and/or easements that provide its members, and the public, access to Texas rivers and streams.

Texas Snake Initiative (“TXSI”) is a non-profit organization designed to educate Texans about wild snake species native to the state. TXSI uses positive, educational messages to counteract the negative messages spread about reptiles in Texas. TXSI works to help Texans understand reptiles as beneficial wild animals, just like any other species, that play important roles in their ecosystems.

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I. INTRODUCTION

Turtles are the oldest living group of reptiles on earth, with fossil evidence suggesting they were alive over 200 million years ago. Although turtles thrived on this planet for millions of years, they 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 (Rhodin & 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 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. Population declines due to overexploitation can cause changes in energy flow, nutrient cycling, and food web structure (Mali et al. 2014).

Texas is home to 28 species or subspecies of freshwater turtles (TPWD 2008a). Although most of Texas' turtle species enjoy protection from wild collection, Texas allows unlimited numbers of red-eared sliders, two species of softshell turtles, and common snapping turtles to be taken from the wild by commercial collectors on private lands. 31 TAC§ 65.331(b).

Red-eared sliders, softshell turtles, and common snapping turtles are wild-caught in large numbers in Texas and across the country for the food and pet trade. Commercial harvests of turtles in Texas grew to large numbers starting in the 1990s, when the collapse of turtle populations in Asian countries created a worldwide turtle market (Brown et al. 2011). Commercial harvesters reported taking 46,879 red-eared sliders and softshell turtles from the wild in Texas between 2002 and 2007 (Brown et al. 2011).

Over 1,500 freshwater turtles were reported to be collected in Texas by holders of Texas nongame dealer permits over the last two years; however, this likely underestimates the total numbers of turtles harvested as holders of nongame permits are not required to submit collection reports (TPWD 2016). While it appears commercial harvest of turtles in Texas has decreased in recent years, it is difficult to tell if this is due a decline in turtle numbers (increasing difficulty of collection), under-reporting of harvest, or a lull in commercial activity (Warriner 2014). The harvest that remains continues to pose a significant risk to the future of Texas' wild freshwater turtle populations.

Texas law provides that “[a]ny person, referred to herein ‘petitioner,’ by submitting an administratively complete petition . . . may request that the department adopt, amend, or repeal a rule.” 31 TAC§ 51.2. Pursuant to this authority and for the reasons explained below, Petitioners request that the Texas Parks and Wildlife Department (“TPWD”) grant this petition and end unlimited commercial 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. Most turtles harvested in the United States are exported to supply food and medicinal markets in Asia, where turtle consumption rates have soared and native populations of turtles have rapidly depleted (Klemens and Thorbjarnarson 1995; Gibbons et al. 2001; Reed and Gibbons 2003). China is the biggest consumer of turtles in the food trade and has long commercially harvested 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). Most turtle species in Vietnam and southern China are endangered and there are reports that turtles can no longer be found in the wild in Vietnam (Kiester and Juvik 1997). Consumers of Asian cuisine prize 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 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 red-eared slider (*Trachemys scripta elegans*), 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 2017). 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 (USFWS). 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 2017). In addition, live turtles may be sold domestically, which is not required to be recorded by

USFWS. For example, one of the biggest harvesters of wild turtles in Texas in the 2015-16 season exports live turtles to California to be sold to customers within the state.¹

B. Wild Turtle Collection in Texas

A high diversity of freshwater turtles can be found in Texas, including species with very limited ranges like the ornate box turtle and some with widespread ranges throughout the state like the red-eared slider (TPWD 2008a). Four families of freshwater turtles, comprising 28 species, live in Texas:

- Family Emydidae (western painted, southern painted, chicken, Cagle's map, Ouachita map, false map, Texas map, Texas diamondback terrapin, eastern river cooter, Rio Grande cooter, Texas river cooter, eastern box turtle, desert box turtle, ornate box turtle, Big Bend slider, red-eared slider)
- Family Chelydridae (common snapping and alligator snapping turtles)
- Family Trionychidae (smooth softshell, Texas spiny softshell, Guadalupe spiny softshell, western spiny softshell, pallid spiny softshell); and
- Family Kinosternidae (yellow mud, Chihuahuan mud, Mississippi mud, razorback musk, and common musk turtles).

The alligator snapping turtle, Cagle's map turtle and Chihuahuan mud turtle are listed as state threatened species. 31 TAC§ 65.175. Texas map turtle, Texas diamondback terrapin, Rio Grande cooter, eastern box turtle, ornate box turtle, Big Bend slider, red-eared slider, common snapping turtle, smooth softshell turtle, and spiny softshell turtle are identified as "Species of Greatest Conservation Need," those species that are declining or rare and in need of attention to recover or to prevent the need to list under state or federal regulation (TPWD 2017).

Prior to 2007, Texas allowed unlimited collection of virtually all wild freshwater turtles throughout the state. In 2007, Texas modified its regulations for nongame wildlife, in recognition of the growing commercial collection and sale of wild turtles, snakes, and other nongame animals (TPWD 2007). The state recognized that unrestricted take of turtles from the wild over the long term leads to population declines coupled with unrestricted commercial collection (TPWD 2007). The new regulations protected all freshwater turtles from harvest on public lands and in public waters in the state, while still allowing the unlimited commercial take of the most commonly harvested turtle species on private property and in private waters (Brown et al. 2011).

Restricting harvest to private land, while an important step in the right direction, has not alleviated the risk to the state's turtles (Brown et al 2012; Mali et al. 2012; Brown et al. 2011). Because most of the state's turtles are found on private waters and lands, the state's regulations only prohibit harvest from 2.2% of water bodies in Texas, making it unlikely that harvested turtle populations in private waters can expect to be sufficiently replenished through immigration of turtles from public waters. This type of spatial regulation also makes it harder to enforce the rules and monitor poaching.

¹ Permits for dealers exporting turtles to California, obtained from the California Department of Fish and Wildlife, included one 2015-16 Texas nongame dealer permit.

Texas continues to allow unlimited commercial harvest of four native, freshwater turtle species on private property in the state: common snapping turtle (*Chelydra serpentina serpentina*), red-eared slider (*Trachemys scripta elegans*), smooth softshell (*Apalone mutica*), and spiny softshell (*Apalone spinifera*). 31 TAC§ 65.331(b) (listing all native turtles that a holder of a nongame dealer's permit may "possess, transport, sell, resell, import, or export.. provided that take occurs on private land or private water"). Four subspecies of spiny softshell are found in Texas and are included in those that can be commercially harvested: Texas spiny softshell (*Apalone spinifera emoryi*), Guadalupe spiny softshell (*Apalone spinifera guadalupensis*), western spiny softshell (*Apalone spinifera hartwegi*), and pallid spiny softshell (*Apalone spinifera pallidus*).

Turtles may be collected year-round in Texas, and there are no limitations on the size of the turtles that may be harvested. The only requirements for collection of the permitted species on private lands and in private waters are: devices for taking turtles must be marked with a gear tag, the opening or entrance of the device must remain above water at all times, and the holding area of the trap must provide a sufficient area above water to prevent trapped turtles from drowning. 31 TAC§ 65.328.

The turtle collectors must also hold a nongame collection permit (\$19 resident, \$63 non-resident) or nongame dealer's permit (\$63 resident, \$252 non-resident). 31 TAC§ 65.331(b). A nongame dealer permit is required to resell nongame species. 31 TAC§ 65.327(b)(1). Nongame collection permit holders may only sell to nongame dealers. 31 TAC§ 65.327(b)(1). A nongame collection permit can be purchased from any vendor where hunting and fishing licenses are sold. Nongame dealers apply for permits and annual renewals directly with the TPWD. TPWD. 31 TAC§ 65.329. While both types of permit holders are required to keep and maintain records for two years following the period of validity of the permit, only nongame dealers are required to submit annual reports to TPWD. 31 TAC§ 65.330.

Over the past two years nongame dealers reported collecting 650 spiny softshell turtles (2014-15: 304, 2015-16: 346), 852 red-eared sliders (2014-15: 441, 2015-16: 411), and 31 common snapping turtles (2014-15: 11, 2015-16: 20) from the wild (TPWD 2016). Reports did not include any records of smooth softshell turtles harvested from the wild. These reports underestimate the actual number of turtles collected in the wild because they exclude turtles harvested by holders of nongame collection permits, as holders of these permits are not required to submit reports. 31 TAC§ 65.330. In the most recent permitting year (2015-16), nongame dealers in Texas also reported purchasing an additional 147 spiny softshell turtles, 678 red-eared sliders, and 23 common snapping turtles that were collected in the wild (TPWD 2016).²

When adopting 2007 regulations for nongame wildlife, TPWD indicated that it would consider further restricting turtle harvesting in the future based on ongoing monitoring (TPWD 2007). When the Center petitioned TPWD for further turtle harvest restrictions in Texas in 2008, the Department recommended the petition be denied, rationalizing that TPWD staff had not had sufficient time to evaluate the impact of the new rules on turtle populations (TPWD 2008b).

² Reporting of whether or not purchased animals were wild caught was not required until the 2015-2016 permitting season so numbers of wild-collected turtles purchased by dealers in prior seasons is not available.

They further explained that TPWD had contracted with Texas A&M University to lead a five-year study to assess freshwater turtle populations in various geographic regions of the state and that when the results of the study were known TPWD could consider whether additional rulemaking is necessary (TPWD 2008b).

The study of Texas' freshwater turtle populations ended after four years due to a loss of funding (Mali et al. 2011). The single best conclusion from the research conducted was that the current turtle harvest regulations in Texas are not likely to be sustainable (Mali et al. 2011; Brown et al. 2011). The researchers were not able to obtain enough data to estimate state-wide abundance of freshwater turtles (Mali et al. 2011).

The turtle harvest regulations in Texas are based on a spatial harvest model, which relies on the theory that over-harvesting and subsequent population collapse in private waters is prevented by replenishment of turtles from public waters (Brown et al. 2011). However, only 2.2% of the water bodies in the state are protected from collection under the current management regime (Brown et al. 2011). Combined with the intensity of commercial harvests, and non-robust or non-interactive protected populations, these factors led the researchers to conclude that long-term sustainable harvest is unlikely under Texas' current turtle harvest regulations (Brown et al. 2011). Mali et al. (2012) studied the impacts of road density in the Lower Rio Grande Valley and failed to find road density to be a strong predictor of decreased red-eared slider abundance, providing further support for previous findings that red-eared slider declines in this area are due to commercial harvest and land use changes (Brown et al. 2011, Brown et al. 2012).

In addition to commercial harvest, Texas also permits collection and possession of most Texas turtle species year-round for personal and noncommercial use with a valid hunting license, with the exceptions of the diamondback terrapin and the three turtle species classified as state-threatened. 31 TAC§ 65.327(b)(3)(A); 31 TAC§ 65.325(b)(8); 31 TAC§57.972(g)(10). Possession of turtles for personal and noncommercial use is limited to a 25 or fewer animals of the species listed in the White List (31 TAC § 65.331(d)) and six or fewer animals of the species listed in the Black List (31 TAC § 65.331(e)). 31 TAC § 65.327(b)(3).

C. Natural History, Threats, 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 Texas, including four recognized subspecies of spiny softshells.

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; however, the spiny softshell 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. Heavy harvesting of softshells in Texas has been identified as a cause for concern among biologists about the stability of the populations (TPWD 2008a). In 2009, Brown et al. (2012) repeated a freshwater turtle survey first conducted in 1976 in the Lower Rio Grande Valley of Texas, an area subjected to intensive commercial harvest in 1999, and found significantly fewer Texas spiny softshells.

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 spiny 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 on populations 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). It 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). Texas includes both the smooth softshell and spiny softshell turtles in its list of “Species of Greatest Conservation Need” (TPWD 2017).

Effective November 21, 2016, the U.S. Fish and Wildlife Service regulates and monitors international trade of the smooth and spiny softshell turtles, along with common snapping turtles and the Florida softshell turtle under a new agency rule. 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.

D. Natural History, Threats, and Status of Red-eared Sliders

The red-eared slider is a subspecies of the pond slider (*Trachemys scripta*) (Powell, Conant & Collins 2016). The red-eared slider has yellow stripes on its head, forelimbs, and thighs, with broad, reddish stripes behind its eyes. Its carapace is greenish or olive with light yellowish vertical bars, which often become obscured or mottled with age.

Red-eared sliders can be found in rivers, ditches, sloughs, lakes, and ponds in the Mississippi Valley from north Illinois to the Gulf of Mexico (Powell, Conant & Collins 2016; Behler & King 1979). They mate from March to June and nest in June and July, laying 1–3 clutches of 4-23 oval eggs (Behler & King 1979). Males mature in 2–5 years. Young turtles feed on water insects, crustaceans, mollusks, and tadpoles, then turn to a plant diet as they mature.

Sliders are fond of basking and are often seen stacked upon one another on logs, making them vulnerable to people who use them for target practice. Commonly referred to as the “dime store” turtles, red-eared sliders are often collected and sold in the pet trade (Behler & King 1979; FFWCC, undated). The red-eared slider is the most widely introduced turtle in the world and is included among 100 of the World’s Worst Invasive Species (Powell, Conant & Collins 2016; http://www.issg.org/worst100_species.html).

Red-eared sliders are also negatively impacted by commercial collection. Warwick and Steedman (1988) compared the abundance and body size of red-eared sliders in protected populations in Texas and exploited areas of Louisiana. They found lower overall abundance and a sharp reduction in the proportion of larger individuals in the Louisiana populations. Close and Seigel (1997) studied the effect of human harvesting on red-eared sliders in Mississippi, where they are protected, and in southern Louisiana, where they are not. They found that populations of sliders from protected sites were larger than turtles from harvested sites, consistent with harvesting pressure that targets large adults for meat or breeding stock. The results suggest that higher levels of harvesting are likely to have negative consequences for red-eared slider populations.

Brown et al. (2011) recently reported harvesting impacts for unprotected waters in Texas, with female red-eared sliders being smaller in unprotected waters when compared to protected waters. They attributed the difference in female turtle sizes to a harvesting preference for female turtles, which are collectively larger than males and preferable for food markets (Brown et al. 2011). They also suggested females may be collected in larger quantities to be used as breeding stock (Brown et al. 2011). In 2009, Brown et al. (2012) repeated a freshwater turtle survey first conducted in 1976 in the Lower Rio Grande Valley of Texas, an area subject to intensive harvests in 1999, and found significantly fewer red-eared sliders. Road density was not a strong

predictor of red-eared slider abundance in this area, providing further support for the proposition that declines were due to commercial harvest and land use change (Mali et al. 2012).

Though wild red-eared sliders have been captured and exported in massive numbers, export trends may indicate declining populations. In 2012, 4,403,752 wild-caught red-eared sliders were exported from the United States, and since that time exports have sharply declined, which may indicate scarcity. In 2015, 2,043,969 red-eared sliders were exported from the United States, representing less than half of the 2012 exports by comparison.

Studies of turtle meat products in Louisiana and Florida markets also indicate that as larger turtles become depleted and harder to capture, smaller species, including emydid turtles like red-eared sliders, may receive increased harvest pressure (Roman and Bowen 2000).

Though the red-eared slider is listed as Least Concern under the IUCN Red List of Threatened Species, this is largely due to its wide distribution, large range of habitat, and large population (van Dijk et al. 2016). NatureServe lists red-eared sliders as globally secure, though its status was last reviewed 21 years ago in 1996. Texas includes red-eared sliders on its list of “Species of Greatest Conservation Need” (TPWD 2017).

Wild collection and export of native red-eared sliders is also harmful because it leads to invasive populations of sliders in ecosystems where they would not normally occur (FFWCC, undated). In Florida, exotic populations of red-eared sliders are expanding and rivaling populations of native turtles in some ponds (FFWCC, undated). They have also been introduced into places they do not naturally occur in at least twenty-three other states (USGS 2009). These turtles are introduced primarily through pet releases and escapes (USGS 2009). Though many states have made it unlawful to release nonnative turtles like the red-eared slider into natural ecosystems, these laws are difficult to enforce. Releases and escapes presumably continue to occur.

E. Natural History, Threats, and Status of Common Snapping Turtles

The common snapping turtle is a large, mostly aquatic turtle that weighs 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). Common snapping turtles can be found throughout Texas, except from the Trans-Pecos and the South Texas brushlands (TPWD 2008a).

Snapping turtles occupy all types of freshwater habitats (streams, lakes, reservoirs, ponds, marshes, swamps), 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, but females produce large clutches and may live

and reproduce for several decades, so they usually produce offspring that join the breeding population (NatureServe 2015).

Although common snapping turtles are not significantly threatened overall, urbanization and excessive harvest has local impacts (NatureServe 2015; van Dijk 2016a). Females are especially susceptible during nesting season when 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). In Algonquin Park, for example, the probability of a snapping turtle embryo surviving to sexual maturity is less than 0.1% (COSEWIC 2008).

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). Collection for human consumption has decimated some populations (Harding and Holman 1990; Tucker and Lamer 2004).

In the United States snapping turtles are sold at Asian seafood markets and Asian restaurants. 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/>).

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 2017).

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 2017). The total annual harvest across reporting states was positively correlated with the number of wild caught live individuals exported (Colteaux and Johnson 2017).

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 (USFWS 2016). 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). For example, 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).

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 population to be halved in under 20 years (COSEWIC 2008).

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). Texas includes common snapping turtles on its list of “Species of Greatest Conservation Need” (TPWD 2017).

Along with the three softshell turtles, the common snapping turtle was added to CITES Appendix III, with the rule going into effect November 21, 2016.

Wild capture of common snapping turtles is prohibited in some states (including Maryland, Michigan and New York) or strictly regulated (including Alabama, Maryland, Connecticut). 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 2017).

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 may 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, low fecundity, 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). 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).

Accordingly, 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). As described in the sections above, research on freshwater turtles in Texas has shown declines in areas with commercial harvest and has shown that the current spatial harvest management model is not likely to be sustainable (Brown et al. 2011; Brown et al. 2012).

Because Texas' management model relies directly on the assumption that turtles in non-harvested waters (i.e. protected public waters) will migrate and repopulate harvested regions, Mali et al. (2016) sought to detect the effects of harvest on movement of red-eared sliders in Guadalupe County, Texas through the use of simulated harvest events. The adult red-eared sliders made overland movements in the study more frequently than has been documented for other freshwater turtles, with 85% of sliders making at least one overland excursion (Mali et al. 2016). While sliders did repopulate the harvested pond fairly quickly after the first harvest simulation event, after a second harvest simulation the following year the recovery was much lower. The authors warned that their results call for caution with spatially controlled harvest regimes because ponds depleted by harvesting might not be able to be continually repopulated by immigrating turtles if the source populations also decrease due to this regular dispersal to harvested ponds (sink populations) and subsequent slowing of reproduction rates throughout the metapopulation (Mali et al. 2016).

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." Reed et al. (2002) found that the removal of as few as two female adult alligator snapping turtles could halve a population of 200 turtles within 50 years. Congdon et al. (1994) found that the removal of as few as 10 percent of the adults above 15 years of age could halve a snapping turtle population in 15 years. Garber and Burger (1995) documented the extirpation of a wood turtle (*Glyptemys insculpta*) population due to the occasional removal of adults by recreational users. After populations are depleted by overharvest, they can take decades to recover (Brown et al. 2011).

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).

Texas' authorization of commercial collection of freshwater turtles poses a risk to other species as well. Texas regulations allow permitted individuals to use nets and traps to commercially harvest the four species of freshwater turtles discussed above. These nets and traps incidentally and indiscriminately capture many species, which subsequently drown when they cannot escape. 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 capture hungry wildlife. These devices are capable of capturing all aquatic animals

in the trap location including other species of freshwater turtles, fish, aquatic mammals (such as beaver, muskrat, otter, and mink), snakes and state and federal threatened and endangered species. Scientists have documented this type of incidental mortality from commercial fishing nets in the Mississippi River (Fratto et. al. 2007; Barko et al. 2004; Braun and Phelps 2016). 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.

Though Texas regulations require that turtle traps “provide a sufficient area above water to prevent trapped turtles from drowning,” 31 TAC§ 65.328(b), it is practically infeasible to monitor and ensure compliance. Further, 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 (Larocque et al. 2012).

In addition, turtle collectors often misidentify protected species that appear similar to non-protected turtles. For example, trappers often cannot distinguish alligator snapping turtles from common snapping turtles and coin both species simply as “loggerheads.” Collectors who can distinguish these species and who realize the high value of alligator snapping turtles for the international pet trade may purposely harvest them and portray them for sale as common snapping turtles. 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 Texas the alligator snapping turtle, Cagle’s map turtle and Chihuahuan mud turtle are listed as state threatened species. 31 TAC§ 65.175. These protected aquatic turtles, and other turtle species that are prohibited from take, could be incidentally killed or captured by commercial turtle collectors. Restrictions on commercialization of turtles in Texas would likely lead to less incidental take of nontarget species and make it harder for poachers to pass off rare, protected species as more common ones.

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, 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, such as snapping turtles and softshell turtles, are likely to have greater levels of aquatic contaminants because their pathway of exposure is greater.

The Texas Department of State Health Services (2017) issued fish consumption advisories for mercury, PCBs, and dioxins in many freshwater areas throughout the state, including in counties where a large proportion of harvested turtles were taken in the last 2 years, including Hidalgo, Anderson, and Polk counties. It also issued a consumption ban for the Donna Irrigation System in Hidalgo County. Because nongame dealers do not have to report specific locations of where take occurred within the counties, it is unclear whether commercially collected turtles came from these areas included in the ban or under consumption advisories.

In light of the contamination of Texas water bodies and waterways, and scientific evidence that turtles bioaccumulate high levels of aquatic contaminants, eating wild caught turtles in Texas poses a human health risk. This provides yet another reason TPWD should prohibit commercial collection and sale of all wild caught turtles in Texas.

C. Most States Have Ended This Harmful Practice

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

Starting in 2007, the Center for Biological Diversity (Center) identified 12 states that still allowed commercial collection of turtles (Arkansas, Florida, Georgia, Iowa, Kentucky, Louisiana, Missouri, Ohio, Oklahoma, South Carolina, Tennessee, and Texas). The Center submitted administrative rulemaking petitions to these states 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 2009 Florida closed commercial turtle harvest in both public and private waters. Fla. Admin. Code Ann. r. 68A-25.002(6)(c). Oklahoma banned commercial harvest of turtles from public waters, but large year-round commercial harvest of unlimited numbers of eight species of turtles still exists in private waters, including softshell turtles less than 16 inches in length and common snapping turtles. 29 Okl. St. § 6-204; OAC § 800:15-9-3. 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. S.C. Code Ann. Regs. 50-15-70. 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. Ga. Comp. R. & Regs. § 391-4-16-.05(1). Also in 2012, Alabama prohibited the unlimited commercial collection of all turtles listed as nongame species, with an allowance for very limited personal collection. Ala. Admin. Code r. 220-2-.142 (2)(A); Ala. Admin. Code r. 220-2-.92. In 2017, new regulations went into effect in Iowa setting closed seasons and possession limits for commercial turtle trappers.

As individual states close or restrict turtle trapping within their borders, harvest pressure increases on the remaining states without restrictions (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 (Mali et al. 2014). For example, in 2016 a Louisiana man was accused of using commonly harvested common snapping turtles as cover for the sale of at least 160 protected species of turtle (http://www.nola.com/crime/index.ssf/2016/01/minden_man_accused_of_smugglin.html). In that way, overexploitation can more easily occur in regions with inconsistent state regulation of turtle trapping.

Of the four states that share a border with Texas, Arkansas, Louisiana and Oklahoma allow unlimited commercial collection of turtles. 002-00-001 Code Ark. R. § 34.04; La. Admin. Code tit. 76; 29 Okl. St. § 6-204; Oklahoma Admin. Code § 800:15-9-3. New Mexico limits commercial collection of several species of turtles with annual bag limits, including 5 smooth softshells, 10 spiny softshells, 20 common snapping turtles, and 20 pond sliders in Pecos River and its tributaries with unlimited take of sliders elsewhere in the state (19 NM Admin. Code 19.35.10.10, New Mexico Dept. of Game and Fish 2016).

This region of the United States is a hotspot for commercial turtle collectors, and reform is needed. If Texas would create closed seasons and bag limits within its borders, adjacent states are likely to follow its example and 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

According to 31 TAC§ 51.2, which provides that the petition must “clearly state or describe the complete text of the proposed rule or amendment,” Petitioners suggest the following amendment to 31 TAC§ 65.331. Under the proposed rule amendment, the bold and strikethrough language below would be deleted. In addition, the smooth softshell, spiny softshell, red-eared slider, and common snapping turtle would be added to the "black list" of species prohibited from commercial activity, found at 31 TAC§ 65.331(e) in the current regulation (proposed to change to § 65.331(d)).

Rule 65.331 Commercial Activity

(a) Policy. The department shall develop a policy for periodic evaluation of pertinent information or evidence to determine if a species should be added to or removed from the lists of species in this section.

~~(b) Turtles.~~

~~–(1) The holder of a nongame permit may possess, transport, sell, import, or export common snapping turtle (*Chelydra serpentina*), red-eared slider (*Trachemys scripta*), or softshell turtle (*Apalone spinifera*, *A. muticus*) in accordance with the provisions of this subchapter, provided that take occurs on private land or private water.~~

~~–(2) The holder of a nongame dealer's permit may possess, transport, sell, resell, import, or export common snapping turtle (*Chelydra serpentina*), red-eared slider (*Trachemys scripta*), or softshell turtle (*Apalone spinifera*, *A. muticus*) in accordance with the provisions of this subchapter, provided that take occurs on private land or private water.~~

~~–(3) No person while on or in public water may possess or use a net or trap capable of catching a turtle. This section does not apply to:~~

~~—(A) dip nets; or~~

~~—(B) minnow traps, provided the minnow trap is less than 24 inches in length or has a throat smaller than one by three inches.~~

~~(e) (b)~~ It is an offense for any person to take or attempt to take nongame wildlife for purposes of commercial activity from public land or water.

~~(d) (c)~~ The species of nongame wildlife listed in this paragraph may be possessed, purchased, sold, offered for sale, imported, or exported as provided under this subchapter.

[Attached Graphic](#)

~~(e) (d)~~ No person shall engage in commercial activity involving any nongame species not listed in subsection ~~(d) (c)~~ of this section, except as provided in §65.327 of this title (relating to Permit Required) ~~and subsection (b) of this section~~. This prohibition on commercial activity includes, but is not limited to, the following species:

[Attached Graphic](#)

Under the Parks and Wildlife Code, the TPWD has the duty to manage nongame species of fish and wildlife so that they can perpetuate themselves successfully. Tex. Parks & Wild. Code § 67.002. To this end, the Department can establish any limits on take necessary to manage the species. *Id.* § 67.004. Texas 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 ensure the ability of Texas' turtle populations to perpetuate themselves by protecting them from the harmful impacts of unlimited commercial collection.

IV. CONCLUSION

Petitioners have summarized the harms caused by the commercial collection of wild turtles in Texas. 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. As a result of the significant harm caused by unlimited commercial collection of turtles, most states have ended or are ending the practice, including New Mexico, which borders Texas. Petitioners therefore request that the Texas Parks and Wildlife Department adopt the proposed rule amendment and end unlimited commercial collection of wild turtles in all waters of the state.

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