CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA
Amendments to Appendices I and II of CITES

Eleventh Meeting of the Conference of the Parties
Nairobi (Kenya), April 10-20, 2000

A. PROPOSAL

Inclusion of *Crotalus horridus* in CITES Appendix II.

B. PROPONENT

United States of America

C. SUPPORTING STATEMENT

1. Taxonomy

1.1 Class: Reptilia
1.2 Order: Lepidosauria
Suborder: Squamata
1.3 Family: Viperidae
1.4 Species: *Crotalus horridus* (Linnaeus)

Coloration and pattern of *Crotalus horridus* are highly variable (Brown 1993). Up to four different forms have been recognized, based on geographical, morphological and coloration variations. Conant and Collins (1991) describe them as (1) yellow variation, (2) black variation, (3) southern variation (also called the canebrake rattlesnake), and (4) western variation. Martin (1992) recognizes just three forms: (1) the eastern timber rattlesnake, (2) the western timber rattlesnake, and (3) the southern timber rattlesnake. Herpetologists do not agree on the subspecific taxonomy of *Crotalus horridus*. Some herpetologists (e.g., Pisani et al. 1973) do not believe there are any valid subspecies. Others (e.g., Ernst 1992) recognize two valid subspecies, the timber rattlesnake *Crotalus horridus horridus* (in the northern part of the range) and the canebrake rattlesnake *C. h. atricaudatus* (in the southern portion of the range). Because there is no consensus among herpetologists regarding the number of valid subspecies, all forms are herein treated as a single species -- *Crotalus horridus* -- although the timber rattlesnake and canebrake rattlesnake will be discussed separately when available information warrants it.

1.5 Scientific synonyms: none
1.6 Common names:
English: Timber rattlesnake
Banded rattlesnake
Canebrake rattlesnake

1.7 Code numbers:

2. Biological Parameters

2.1 Distribution: The species is endemic to North America. The distribution of *Crotalus horridus* includes 31 states from New Hampshire and Vermont south through the Appalachians to the

Gulf Coast (northern Florida, Alabama); from southern Illinois, Indiana, and Ohio south through Kentucky and Tennessee to the Gulf Coast of Mississippi and Louisiana; and from southeastern Minnesota and southwestern Wisconsin south through eastern Iowa, Missouri, Arkansas and eastern Kansas, eastern Oklahoma and eastern Texas (Reinert 1985, Ernst 1992, Possardt and Tyning, unpublished). Ernst (1992) describes the timber rattlesnake's range as from New Hampshire to northeastern New York, west to Illinois and southwestern Wisconsin and southeastern Minnesota, and south to northern Georgia, northwestern Arkansas and northeastern Texas. He describes the canebrake rattlesnake's range as from southeastern Virginia along the Atlantic Coastal Plain to northern Florida, westward to central Texas, and northward in the Mississippi River valley to southern Illinois (Ernst 1992).

C. horridus has been significantly reduced in at least 20 states: Alabama, Connecticut, Georgia, Indiana, Illinois, Iowa, Kansas, Maryland, Massachusetts, Minnesota, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Vermont, and Wisconsin (Possardt and Tyning, unpublished). *Crotalus horridus* was extirpated from Maine in the 1860s and from Rhode Island in the 1970s (Possardt and Tyning, unpublished). It formerly occurred in southern Ontario, Canada, but is believed to have been extirpated there for over 50 years.

2.2 Habitat availability: *Crotalus horridus* is a migratory, non-aggressive, secretive inhabitant of remote terrain whose habitat varies regionally: mountainous slopes with steep ledges, rocky outcroppings in primary and secondary deciduous forests in the Northeast; steep, rocky bluffs and dry ridges in deciduous forests in the Midwest; and hardwood bottomlands, pine flatwoods, river bottoms, swamps and floodplains, cane fields, and deciduous woodland in the South (Brown 1993, Martin 1992). Timber rattlesnake populations in the southern Appalachians inhabit elevations above 2,000 feet (Martin 1992, Klauber 1972).

In the northern parts of the species' range, Brown (1993) has classified three distinct habitat types based on seasonal activity: den sites, transient habitat and summer range. Den sites, also called hibernacula, are used for overwintering. They are usually rocky outcroppings, open scree slopes, or fallen rock that provide underground crevices for protection from predation and weather (Brown 1993). Timber rattlesnakes hibernate collectively during the winter. The length of hibernation varies according to geographical region. In parts of New England, hibernation may last as long as seven months (Brown 1993). Transient habitat is an area close to a den through which snakes migrate as they leave or return to their dens (Brown 1993). These areas are rock outcroppings with specific shelter rocks that are repeatedly used by individual rattlesnakes. A five-year radio-telemetry study by Reinert and Zappalorti (1988) in the coastal plain of southern New Jersey demonstrated that summer habitat use by gravid (pregnant) females differs from that used by males and non-gravid females. Males and nongravid females inhabit primary or secondary forest with significant canopy closure (50-75%) and few fallen logs. Gravid females inhabit more open habitat with significantly less canopy closure (25%), more fallen logs and higher temperatures (Reinert and Zappalorti 1988). Because of their preference for open habitat, gravid females were also found along road edges or walls in this same study.

In the South, the canebrake rattlesnake's preferred habitats include hardwood forests of the type found in many river bottoms (Cook 1943), swampy areas and floodplains (Mount 1975), wet pine flatwoods and river bottoms (Ashton and Ashton 1988), upland pine, deciduous woodland and riparian communities (Tennant 1984), hardwood forests and cane fields of alluvial plain and hill country (Dundee and Rossman 1989), and lowland and cane thickets (Ernst 1992). The canebrake occurs throughout much of South Carolina, but is most common in the coastal plain; this rattlesnake is typically associated with bottomlands and mesic forests, but is somewhat of a habitat generalist (S. Bennett, South Carolina Department of Natural Resources, *in litt.* to Office of Scientific Authority (OSA), U.S. Fish and Wildlife Service (USFWS), 1999). In Louisiana, the canebrake is a hardwood specialist that vanishes in pine monoculture (J. Boundy, Louisiana Department of Wildlife and

Fisheries, *in litt*. to OSA, USFWS, 1999).

Canebrake rattlesnakes hibernate individually or in much smaller groups than the timber rattlesnake. They utilize mammal burrows, old stumps, downed logs, or shallow rock crevices. Hibernation may last 4-5 months (Brown 1993).

It is difficult to estimate overall habitat availability for *Crotalus horridus*. Brown (1997) reported that approximately 10-20% of *C. horridus* habitat is protected in national parks, state parks, military reservations, and private conservation lands.

2.3 Population status (and reproductive biology): *Crotalus horridus* exhibits certain attributes characteristic of K-selected species: delayed age of first reproduction and low frequency of reproduction. Research on populations in the Northeast has shown that females do not begin their first year of reproduction until they reach eight or nine years of age with an average range of 7-11 years (Brown 1993). Reproduction thereafter occurs, on average, at least every two years and more often only once every three years. Based on an eight-year mark-recapture study in New York, Brown (1991) found that 22 % of his sample reproduced for the first time at nine years of age. Seventy percent of those females reproduced on a three-year cycle and 23 % on a four-year cycle (Brown 1991). Martin's (1993) 19-year study in the Appalachian Mountains of West Virginia demonstrated that the mean age of first-year reproduction was 7.8 and that 43 % of the sample reproduced on a three-year cycle and 31 % on a four-year cycle. For southern and midwestern populations, where a longer active period occurs outside of the wintering dens, the average age of first reproduction has been shown to be 4-6 years, with females reproducing at least every two years (Brown 1993). Assuming an average lifespan of 16-22 years in the wild, females may only have a total of three to five reproductive years available (Brown 1991).

As stated in Section 2.1, during the summer gravid females usually inhabit open areas such as rocks, exposed walls, or roadsides with less canopy closure than areas used by males and nongravid females. During the 3-4 month gestation period, they feed very little or not at all, spending most of their time in one restricted, visible area (Reinert and Zappalorti 1988). The behavior of gravid females therefore makes them potentially more visible and disproportionately prone to capture.

The TNC/Heritage Distribution Ranking System classifies the status of the *C. horridus* as follows: Maine (SX), Ohio (S2), Louisiana (S4), Missouri (S5), Texas (S5), New Jersey (S?), New York (S3), North Carolina (S4), Kansas (S3), Oklahoma (S3), Wisconsin (S2), Maryland (S3), Massachusetts (S1), Arkansas (S4), Connecticut (S1), Kentucky (S4), Illinois (S3), West Virginia (S5), Georgia (S5), Rhode Island (SX), Nebraska (S1), Mississippi (S5), Iowa (Not Provided), Vermont (S1), Minnesota (S2), Florida (S3), Tennessee (S?), New Hampshire (S1), South Carolina (S?), Virginia (S4), Alabama (S5), Pennsylvania (S3), Indiana (S2).[1] There is a difference in the reported status of populations in northern and midwestern States (primarily the timber rattlesnake) versus southern States (primarily the canebrake rattlesnake). Populations in northern and midwestern States are primarily S1 through S3 (critically imperiled to vulnerable), while those in southern States are primarily S3 through S5 (vulnerable to secure).

2.4 Population trends: Although there are no quantitative data on actual numbers or densities over large areas, evidence from long-term monitoring programs, scientific studies and observations by snake hunters indicate that *C. horridus* populations are declining over much of the species'

[1] Ranks are defined as follows: **S1, Critically Imperiled** - Critically imperiled in the state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically 5 or fewer occurrences or very few remaining individuals. **S2, Imperiled** - Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. Typically 6 to 20 occurrences or few remaining individuals. **S3, Vulnerable** - Vulnerable in the state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because other factors make it vulnerable to extirpation. Typically 21 to 100 occurrences. **S4, Apparently Secure** - Uncommon but not rare, and usually widespread in the state. Usually more than 100 occurrences. **S5, Secure** - Demonstrably widespread, abundant, and secure in the state, and essentially ineradicable under present conditions**. SX – Extirpated**. **S? – Unranked**.

range, and only relict populations remain in many states (Galligan and Dunson 1979, Brown 1992, Martin 1992, Stechert 1992, Zappalorti and Reinert 1992). Biologists gathered for the 1991 symposium, Conservation of the Timber Rattlesnake in the Northeast, all concurred that serious declines have occurred in Connecticut, Massachusetts, Minnesota, New York, New Jersey, and Vermont.

Of 139 known dens surveyed in New York, only 5 % now contain large populations (Stechert 1992). Housing development, illegal snake hunting, and logging are believed to be the reasons for declines in New York and northern New Jersey (Stechert 1992). Zappalorti and Reinert (1992) estimated a 50-66 % population decline for six counties in southern New Jersey. Vermont's population has declined from 25 known population centers to only two at present (DesMeules 1992). Martin (1982) found that according to long-time observers and snake hunters, den populations are down to 15-40 % of levels typical of forty years ago, and that "only 25 % are believed to have populations of 45 or more snakes (the minimum size that we would consider viable)." Historically, the timber rattlesnake was distributed throughout Pennsylvania. Historical accounts record that 250 snakes inhabited one hibernaculum in 1906, and populations of 100-200 were not uncommon during the late 19th and early 20th centuries (Galligan and Dunson 1979). Based on a three-year radio-tracking study and extensive interviews with snake hunters in Pennsylvania, Galligan and Dunson (1979) found evidence that timber rattlesnake populations in Pennsylvania were declining and large colonies were rare. They concluded that *C. horridus* was approaching extinction in that state and that "large rattlesnake populations are so rare today that many new hunters doubt that large concentrations ever existed" (Galligan and Dunson 1979). Oldfield and Keyler (1989) found rattlesnakes at only 38 % of the 42 sites they surveyed in western Wisconsin, and the largest number at any one visit was only five rattlesnakes. Historical records indicate that aggregations of 30 snakes were once common in Wisconsin (Schorger 1968).

2.5 Geographic trends: The species disappeared from Maine in the 1800s and from Canada and Rhode Island during the twentieth century. Otherwise, this species occupies most of its original range, but at many fewer localities and in greatly depleted numbers. Distribution of *C. horridus* in approximately 90 localities in New England at the beginning of European settlement had been reduced to 23 localities by the last two decades (Martin 1992).

2.6 Role of the species in its ecosystem: *C. horridus* is a carnivore that preys primarily on mammals (rodents, shrews, chipmunks, squirrels, rabbits, bats) and also birds, bird eggs, other snakes and amphibians (Reinert 1985, Klauber 1972). Three separate studies demonstrated that the timber rattlesnake is an important predator of mice (*Peromyscus* sp.), comprising 65%, 91% and 58%, respectively, of the timber rattlesnakes diet (Reinert *et al*. 1984, Savage 1967, Smyth 1949). Predators of the timber rattlesnake include badgers, large birds such as hawks, king snakes and racers (Klauber 1982).

2.7 Threats: Major threats to the long-term survival of *C. horridus* include habitat degradation and destruction, collection for rattlesnake roundups and commercial skin and pet trades, intentional killing, and highway mortality. Other threats include bounty hunting (now illegal in most states), and resource extractive industries (logging, mining, and gas wells) (Brown 1993).

Although it is difficult to estimate habitat availability for *C. horridus*, it is assumed that it has decreased where housing development, road densities, and conversion of natural forests and wetlands to agriculture or plantation forests have increased. *C. horridus* habitat is fragmented in peripheral parts of its range (Dodd 1977). In the Northeast, timber rattlesnake habitat has been lost to real estate development (Fritsch 1992). In addition, extensive disturbance to snake microhabitats has occurred in the Northeast; this usually takes the form of turning over rocks looking for snakes, thus disturbing dens, basking sites, and shelters (Brown 1993). Locally in areas where suitable habitat is still available, hunting for rattlesnake roundups and commercial collection are reasons for further population decline. Pennsylvania's population, in particular, appears to have been impacted more from collection for roundups and commercial sale (Brown 1992) than by habitat loss. Martin (1992) attributes much of the population decline in the

Northeast to hunting and believes depleted populations can recover if gravid females are not collected.

In the Southeast, extensive, large-scale habitat modification and destruction has taken place in the last 50 years. For example, approximately 3.1 million acres (9 %) of palustrine forested wetlands (bottomland hardwood forests, pine-dominated pocosins, savannas and wet pine flatwoods, hydric hammocks, etc.) in the Southeast were lost or converted from the mid-1970s to the mid-1980s alone (Hefner et al. 1994). Nearly two-thirds of this decrease was actual wetland loss by conversion to agriculture, forest, range, or barren land. More than two-thirds of the palustrine forested wetland loss took place in the Lower Mississippi Alluvial Plain (Louisiana, Mississippi and Arkansas) and the Gulf-Atlantic Coastal Flats, especially in North Carolina (Hefner et al. 1994). Conversion of natural forests to tree farms, often monocultures, has also caused significant habitat loss in the Southeast (Dodd 1987). Today, less than 14 % of the expansive, longleaf pine savanna remains(Frost et al. 1986), with just 3% surviving as old-growth habitat. In Louisiana, canebrake rattlesnake population declines have been attributed to habitat conversion to pine monocultures; this rattlesnake seems to be the first species to disappear when habitat blocks shrink (J. Boundy, Louisiana DWF, *in litt*. to OSA, USFWS, 1999).

Brown (1993) and Martin (1992) stated that human exploitation has caused a decline in *C. horridus* populations in recent times, in particular because of lowered recruitment due to collection of gravid females. Dodd (1987) listed collection for the pet trade and malicious killing as the two major reasons for this species decline. According to Martin (1992), "summertime snake hunting is by far the biggest factor in the extirpation and reduction of timber rattlesnake populations." Collection of large numbers of gravid females, injury to individuals (and other wildlife species) by gassing of dens, improper use of nooses and hooked sticks during collection (Reinert 1990), disturbance and intentional destruction of den sites, and re-release of captured rattlesnakes at sites other than natal sites all contribute to the depletion of the population. Concentrations of males and females in hibernacula during winter in the Northeast facilitate capture, because only den sites and birthing rookeries, not individuals, need to be located. In their survey of timber rattlesnake populations in Pennsylvania, Galligan and Dunson (1979) were not able to find one undisturbed den site in 15 areas surveyed across the state. Most commercial snake hunters interviewed by Galligan and Dunson (1979) stated that almost all the big dens in their area had been hunted out and they were now hunting dens which would have been considered too small 10 years ago.

These threats to *C. horridus* are exacerbated by the species' significantly delayed first year reproductive age, low frequency of reproduction, high first-year mortality, low recruitment, and a preference for open habitats by gravid females. Brown (1997) reported that 61 % of females did not reproduce until they were nine or ten years old, and most (84 %) only bred every three to four years (see Section 2.3). The timber rattlesnake is especially vulnerable in the Northeast where research has shown that females do not begin their first year of reproduction until they reach eight or nine years of age and an average reproductive rate of producing young every two to three years. Martin (1992) believes that populations can recover if gravid females are not collected.

3. Utilization and Trade

3.1 National utilization: *C. horridus* are captured for utilization in "rattlesnake roundups", the live pet trade, skin trade, meat trade and for sale as "novelties" (stuffed and mounted snakes, jewelry, etc.). Quantitative data are available only for Florida. (Note: Although Florida data do not make a distinction between the two forms of *C. horridus*, only the canebrake rattlesnake occurs in Florida and adjacent portions of bordering States). Enge (1995) reported that for the period July 1990 through June 1994, 181 live *C. horridus* were reported taken from the wild and sold in the Florida pet trade or venom business. Enge (1995) further reported that for the same period (July 1990 through June 1994), Florida hide dealers and taxidermists reported purchasing 8,118 dead *C. horridus* from Georgia (78 %), Alabama (16 %), and Florida (6 %). One hide dealer in north

Florida purchased 97 % of all *C. horridus* skins. This dealer reported selling 98 % of his rattlesnake skins (*C. adamanteus* and *C. horridus*) to boot companies in Texas and Tennessee. Enge (1993) believes the reported levels of domestic trade in dead snakes (mainly snakes harvested for their skins) are considerably lower than actual levels.

3.2 Legal international trade: Although many unlisted species in international trade are not identified to species level, minimum declared exports of *Crotalus horridus* from the United States for 1992-99 are provided in Table 1, based on records of the U.S. Fish and Wildlife Service's Office of Law Enforcement.

3.3 Illegal trade: The most well-known case of illegal trade in *C. horridus* was the conviction of snake handler Rudy Komarek for poaching and trafficking illegal snakes in 1993. Scientists say that Komarek, in collecting thousands of snakes illegally, devastated the populations of rattlesnakes in New York and Massachusetts and had a major impact on those of Connecticut and New Jersey (Brown et al. 1994). One primary snake collector is reported to account for the species' decline in both New Hampshire and Minnesota. In part because of the stigma associated with venomous snakes, regulations pertaining to their taking are often poorly enforced or not at all.

Table 1. Declared exports of *Crotalus horridus* from the United States, 1992-1999.

ITEM	1992*	1993*	1994*	1995	1996	1997	1998	1999**
C. horridus								
-- No. live individuals	58	76	60	71	30	24	23	0
-- No. boots or pieces cut for boots	752	450	216	190	0	28	0	0
-- No. other items, incl. novelties***	451	0	21	84	0	2	0	0
C. h. atricaudatus								
-- No. live individuals	–	–	–	0	11	5	0	5
-- No. boots or pieces cut for boots	–	–	–	0	0	20	0	0
-- No. other items, incl. Novelties***	–	–	–	0	0	0	0	0

NOTES: *1992-1994 data do not distinguish the *atricaudatus* subspecies
**1999 data are incomplete
*** knife cases, key rings, money clips, buckles, jewelry, etc.

3.4 Actual or potential trade impacts: Collection of timber rattlesnake for trade has severely impacted timber rattlesnake populations in several northern States (see Section 3.3 Illegal trade). Today, only relict timber rattlesnake populations remain in most northeastern States. These populations are unlikely to be able to sustain any level of harvest for trade. Some populations of the southern canebrake rattlesnake may be in better condition, and may be better able to sustain limited harvest.

3.5 Captive breeding or artificial propagation for commercial purposes: Not known.

4. Conservation and Management

4.1 Legal Status:

4.1.1 National: State- and provincial-level protection and regulation of collection and possession of timber rattlesnakes are summarized in Appendix 1. *Crotalus horridus* is state-listed as an Endangered Species and is protected from harvest and sale in Connecticut, Massachusetts, Minnesota, New Hampshire, New Jersey, Ohio, and Vermont. It is state-listed as a Threatened Species in Illinois (Illinois Endangered

Species Protection Board, 1994), New York, and Texas. The species is fully protected in Indiana under the Indiana Nongame and Endangered Species Act, and in Kansas, where it is identified as "in need of conservation." Virginia law only designates the canebrake population, which is located in the extreme southeast corner of the state, as Endangered.

Regulatory efforts in Arkansas, Maryland, North Carolina, and Tennessee effectively prohibit commercial harvests and sales. Limited takes are permitted in both Mississippi (Jones, 1996) and Missouri (Johnson, 1996) though sale is prohibited. Nebraska allows unlimited collection of native snakes, but restricts commercialization and export.

Oklahoma attempts to regulate exploitation by setting a hunting season on the species (Levell, 1997). Pennsylvania attempts to regulate exploitation by setting a hunting season and daily harvest limits, and by placing other controls on traditional rattlesnake roundups in the state (Shiels, 1996).

The species has no specific legal protection in Alabama, Florida, Georgia, Iowa, Kentucky, Louisiana, South Carolina, West Virginia, and Wisconsin. Wisconsin requires a hunting or fishing license for collection of native reptiles.

4.1.2 International: Unknown.

4.2 Species Management

4.2.1 Population Monitoring: Populations of *C. horridus* are being monitored by New York (Hunsinger 1996) and Connecticut (Victoria 1996), where it is protected from harvest. Pennsylvania is involved in a timber rattlesnake occurrence mapping project (Shiels 1996). No states that permit commercial harvests of this species monitor their populations. Florida collected, compiled, and reported information pertaining to the sale and trade of this species from 1990 through 1994 (Enge 1995), but has since discontinued monitoring.

4.2.2 Habitat Conservation: Brown (1997) reported that approximately 10-20 % of *C. horridus* habitat is protected in national parks, state parks, military reservations, and private conservation lands No other specific habitat conservation measures are known.

4.2.3 Management Measures: Except for the legal protections described in Section 4.1.1 (Legal Status, National), no specific management measures are known.

4.3 Control Measures:

4.3.1 International Trade: None (the species is not currently listed under CITES).

4.3.2 Domestic Measures: See Section 4.1.1 (Legal Status, National).

5. Information on Similar Species

Within its range, this species is unlikely to be confused by non-herpetologists with other species, given the availability of suitable identification keys.

6. Other Comments

The United States of America is the only range country for extant *Crotalus horridus*. All U.S. States within the range of *C. horridus* were consulted regarding the desirability of an Appendix-II listing for the species. The States expressed support for the listing proposal.

7. Additional Remarks

Given the current status and biological characteristics of *C. horridus*, especially in the Northeast and Upper Midwest, it is likely that collecting this species from the wild for international commercial trade could have a detrimental impact on the species by either exceeding, over an extended period, the level that can be continued in perpetuity, or reducing it to a population level at which its survival could be threatened by other influences. This situation meets the criteria of Resolution Conf. 9.24, Annex 2a, for inclusion in Appendix II under the provisions of Article II (a).

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Appendix 1. State Regulation of Timber Rattlesnake (*Crotalus horridus*) Collection/Possession[2]

STATE	PROTECTIVE STATUS	REGULATORY CITATION	COMMENTS
Alabama	Not protected	AL GFR 16 220-2-.92-2)	No limit on collection, possession, or sale.
Arkansas	Protected	AGFC 18.20	Collection generally prohibited; commercial nongame breeder's permits required for intra-state sale; possession limit of six specimens.
Connecticut	Protected	CT ESA; CTGS 495 89-224	Fully protected and listed as Endangered under CT ESA. Scientific permit system in place.
Florida	Not protected	Take: FAC 39-25.002-13 Possession: FS 372.86 Organized hunts: FS 372.912 Sale: FS 372.921	Collection allowed throughout year without limit on quantities; possession, organized hunts, sales and exhibition all allowed with licenses.
Georgia	Not protected	GA AC 27-1-28	"Poisonous snakes" are exempted form GA's wildlife protection regulations, including possession. Sale and exhibition requires a fee-based license.
Illinois	Protected	17 IL AC 1010	Listed as Threatened under the IL ESPA. Fully protected; research, educational & zoological permits issued. Propagation, possession, purchase, and sale permits restricted.
Indiana	Protected	IC 14-22-34 and 310 IAC 3.1-5-4	Fully protected under the IN Nongame and End. Spp. Act. A permit system is in place for scientific and educational permits.
Iowa	Not protected	IAC 76.1-2	Designated as unprotected nongame wildlife that may be taken without limit throughout the year.
Kansas	Protected	KSA 1992 Supp. 32-957-963, 32-1009-1012, and 32-1033	Fully protected; listed as "In Need of Conservation" under KS Nongame and End. Spp. Cons. Act. Scientific, education, and exhibition permits issued.
Kentucky	Not protected	301 KAR 3:030.2	All snakes species (except for the copperbelly water snake) are designated as unprotected and may be taken without limit. Fee based permit required for possession, propagation, exhibition, sale, or purchase for commercial purposes. Similar for non-commercial purposes.
Louisiana	Not protected	LSA R.S. 3.2358	Fee based license system in place for native species for most activities, whether commercial or non-commercial.
Maine	n/a	n/a	Extirpated. Permits required to possess venomous species (MIFWR 7.60)
Maryland	Protected	ACM 127-2 and COMAR 08.03.11.03C	Listed under MD Nongame and End. Spp. Cons. Act. Fully protected with permit system in place. Restrictions on venomous spp. in place.
Mass.	Protected	M.G.L. 131A:1-6 and 321 CMR 10.60	Fully protected and listed as Endangered under MA End. Spp. Act. Education and scientific permit system in place.

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Minnesota	Protected	MNSA 84.0895 and MNR 6134	Fully protected and listed as Threatened under the MN End. Spp. Statute. Permit system in place for scientific, education, or rehabilitation purposes.
Mississippi	Partially protected	MS PN 3201.001-I and 3201.001-H	Bag limit (4 specimens) for native reptiles in place, and fee based hunting license required.
Missouri	Partially protected	WCMO 3CSR10-9.110	Bag limit (5 specimens) for native reptiles in place, and fee based hunting license required - for residents only. Non-residents require scientific collecting permit.
Nebraska	Partially protected	NE R.S. 37-507.01	Collection of native snakes allowed without limit. Restrictions in place limiting commercialization and export.
New Hampshire	Protected	NHRSA XVIII 212-A and NMCAR Fis 804.07, 804.29, 810.01 and 1407.1	Fully protected and listed as Endangered under NH Nongame Spp. Mgmt. Act. Research, conservation and exhibition permit system in place. Collection and possession permits allowed with cutoff date of Jan. 1, 1996.
New Jersey	Protected	NJSA 23:2A-1 to 2A-13 and NJAC 7:25-4.1 to 7:25.17	Fully protected and listed as Endangered under NJ Administrative Code. Scientific, educational, propagation and permit system in place for legitimate research, conservation or exhibition purposes.
New York	Protected	NY ECL 11-0535 to 0536	Fully protected and listed as Threatened under NY Enviro. Cons. Law. Scientific collection license system in place.
North Carolina	Not protected	15A NCAC 10B.0119	Non-commercial collection allowed; bag limit (5 specimens) in place for native reptiles - may be exceeded if wildlife collection license is obtained. Sale unrestricted.
Ohio	Protected	OHRC 1531.25	Fully protected and listed as Endangered under the Revised Code of Ohio. Permit system in place for scientific, zoological, education, and conservation propagation purposes.
Oklahoma	Not protected	OAC 800:25-7-8.1-5	May be collected without limit during open season.
Penn-sylvania	Partially protected	PA FBR 77.6e and PA FBR 77.2b	Open season from 2nd Saturday in June to July 31 with a daily bag limit of one. Rattlesnake hunter's permit system in place.
Rhode Island	Protected	RI GL 20-1-12-13	Extirpated. Fully protected and listed as Protected under General Laws of Rhode Island.
South Carolina	Not protected	SC CL R 123-150.3 and SC CL 50-11-2190	Permit system in place for collection; allowable purposes unclear, but timber rattlesnakes are not specifically protected by law or regulation.
Tennessee	Protected	TCA 70-8-104C and TCA 70-4-403	Collection and possession of native reptiles prohibited. Permit system for venomous species for propagators, zoos, research and education in place.
Texas	Protected	TAC 65.171 to 65.181 and TCA 57.271 to 57.284	Fully protected and listed as Threatened under TX Admin. Code. Permit system in place for research, zoological collection, transportation and educational display.
Vermont	Protected	VSA 10-123-5401 to 5408	Fully protected and listed as Endangered under VT ESA. Scientific, propagation, zoological, education, economic hardship and special purposes permit system in place.
Virginia	Protected	VC 29.1-5-6 and VAC 15-20-130	Fully protected and listed as Endangered under VA Admin. Code. Listed as *C. h. atricaudatus* (Canebrake rattlesnake). Permit system in place for research, exhibition, and educational purposes.

West Virginia	Not protected	WV CA 20-2-50	No collection restrictions in place for native reptiles, except if scientific research is being conducted. Captive possession permit system in place.
Wisconsin	Protected	Register, March, 1998, No. 507, eff. 4-1-98: am	No take, attempt to take, transport, or possession allowed. Exemptions on take for "emergency situations" or through DNR assistance to homeowners. Exemption for imported specimens or native specimens taken prior to 4/1/98.
Ontario	n/a	n/a	Extirpated