Species in the *In Situ* Research Role

59 species

Species that for one or more reasons require further *in situ* research to be carried out as part of the conservation action for the species. One or more critical pieces of information is not known at this time.

Species	Extinction risk	Threat mitigation	Protected habitat	Population recovery	Phylogenetic study	Over-collection
Anaxyrus houstonensis	Critically Endangered (CR)	Threats cannot/will not be reversed in time	No	Yes	Yes	No
	Crump/Gluesenkamp - education will be important to get private landowners to help, TPWD student program in place & youth Toad Trackers (Houston Zoo) Habitat assessment for microhabitat needs (for toads) per Paul Crump					
Plethodon ainsworthi	Extinct (EX)	Threats cannot/will not be reversed in time	No	No	No	No
	Extinct species - but we evaluated it with the understanding that if it reappears; education warranted, if rediscovery; Dodd - distinctive morphologically - elongated and skinny. Nothing known as only from limited preserved specimens. Need to study natural history and causes of declines warranted, if rediscovered.					
Ambystoma bishopi	Vulnerable (VU)	Threats cannot/will not be reversed in time	Yes	Yes	Yes	No
	May qualify as endangered; Dodd - ongoing studies by Fla F&GC; Dodd - protection is Eglin AFB & Apalachicola WA; Barber - Jacksonville Zoo has plans to reintroduce in future; Dodd/Barrett - threats are climate change (droughts) and no one else is filling breeding ponds (Barrett - mitigation - habitat loss/ increased connectivity/landscape level occupancy/fill ponds). Barrett - so few populations left, expect difficult to resolve issue. Dodd - analog for cingulatum (which is even more critical); Dodd - education (attractiveness, habitat, regional endemic); natural history lacking					
Ambystoma californiense	Vulnerable (VU)	Threats cannot/will not be reversed in time	No	Yes	Yes	No
	Lannoo - new threat is genetic pollution from introduced tiger salamanders; Gluesenkamp- extirpation includes fish in stock pools; Gluesenkamp mentions that hybridized specimens could be culled from ponds. Gluesenkamp - bred by Brad Schaffer (now at UCLA); Gluesenkamp- "Poster child" for loss of Valley ecosystems.					
Ambystoma cingulatum	Vulnerable (VU)	Threats cannot/will not be reversed in time	Yes	Unknown	Yes	No

Species	Extinction risk	Threat mitigation	Protected habitat	Population recovery	Phylogenetic study	Over-collection
	Dodd - possibly extinct in SC/GA, but FL populations known extant in last two years; Barrett - not seen in GA in more than a decade; Bishop is an analog for this species.; All - regional species awareness and threat awareness would be beneficial similar to small range species, Range state approval (Barrett - no in GA, Dodd - FL is ?, and Riverbanks were wild caught, so potentially possible). Natural history lacking					
Lithobates sevosus	Critically Endangered (CR)	Threats cannot/will not be reversed in time	Yes	No	Yes	No
	Hanna - TNC has bought up wetland sites for potential reintroduction; Lannoo - has been challenged for economic reasons for ESA (development); Memphis Zoo translocated some recently; Assisted Reproduction Technology used to produced frogs. Research required into disease and nutrition of captive population.					
Desmognathus organi	Data Deficient (DD)	Threats unknown	Yes	Unknown	Yes	No
	Dodd - climate change potential impacts; Dodd - and could have been broken out as the northern population of D wrighti; there has not had a range contraction, but has a limited range available. Haislip - habitat being converted to Xmas tree plantations; Dodd - mentioned low genetic diversity in the populations.					
Rana pretiosa	Vulnerable (VU)	Threats are being managed	Yes	Yes	No	No
	It is a candidate species for ESA; doesn't appear to be continuing declines (Becklin/Hassack); reintroduction deemed unknown success, but found egg masses in 2011; head-start program using prison inmates to care for animals (going well), and actively used by head-start program facilities as umbrella for native amphibian declines; phylogenetics in progress (Hassock). Research for herbicide testing in progress; husbandry.					
Plethodon meridianus	Vulnerable (VU)	Threats are being managed	Unknown	Yes	Yes	No
Pseudacris brimleyi	Data Deficient (DD)	Threats unknown	No	Unknown	Yes	No
	Dodd - climate change potentially impacting hydrology patterns needed by species, but not being researched.					
Lithobates fisheri	Data Deficient (DD)	Threats unknown	Yes	Yes	Yes	No
Batrachoseps regius	Vulnerable (VU)	Threats unknown	Yes	Unknown	Yes	No
	Lannoo - localized and separated genetically; lots of genetic work still be sorted out continuously for this genera (Becklin).					
Batrachoseps simatus	Vulnerable (VU)	Threats unknown	Yes	Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?) ; We attempted the Habitat for Reintroduction based on our similar standards for Plethodontids;					
Batrachoseps stebbinsi	Vulnerable (VU)	Threats unknown	Yes	Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					
Plethodon sequoyah	Data Deficient (DD)	Threats unknown	Unknown	Unknown	Yes	No
Desmognathus auriculatus	Near Threatened (NT)	Threats unknown	No	Yes	Yes	No

Species	Extinction risk	Threat mitigation	Protected habitat	Population recovery	Phylogenetic study	Over-collection
	Dodd - there are a number of cryptic species imbedded under this species (in progress by Beamer); Dodd/Barrett - threats are unknown and decline is not explainable.					
Anaxyrus nelsoni	Endangered (EN)	Threats are reversible in time frame	Yes	Yes	No	No
	Hassack - threats from off-road vehicles; Dodd - fewer than 2,000 individuals per Simandle; Philips says this species is similar to exsul (so taxonomic review is likely).					
Urspelerpes brucei	Endangered (EN)	Threats are reversible in time frame	Yes	Unknown	Yes	No
	Newly recognized species; extremely rare - highly endangered; known an 8.5km2 area in Stephens Co., GA and Oconee Co, SC; stream dwellers. (Post workshop: I have a small group of Urspelerpes brucei at home, also recently collected (still bait in GA). They are doing well, though most are larvae. Todd Pierson and Carlos Camp are analyzing eDNA samples as we speak and hopefully with detect a broader distribution. Tim Herman, pers. comm. Oct 2013). Natural history and reproduction.					
Pseudacris brachyphona	Near Threatened (NT)	Threats unknown	No	Yes	Yes	No
	Poole - mountain top mining along with others.					
Pseudacris ornata	Near Threatened (NT)	Threats unknown	No	Yes	Yes	No
Plethodon ouachitae	Near Threatened (NT)	Threats unknown	Yes	Yes	Yes	No
	Gluesenkamp - assumed on National Forest.					
Siren intermedia	Least Concern (LC)	Species does not require conservation action	No	Yes	No	No
	Exceptional - forelimbed only and omnivorous adult stage (vegetation); number of undescribed species from S. Texas (contact Mike Forstener) and Florida (contact Paul Moler).					
Siren lacertina	Least Concern (LC)	Species does not require conservation action	No	Yes	No	No
	Exceptional - forelimbed only and omnivorous adult stage (vegetation).					
Desmognathus folkertsi	Data Deficient (DD)	Species is effectively protected	Yes	Yes	Yes	No
Hydromantes brunus	Vulnerable (VU)	Species is effectively protected	Yes	Unknown	Yes	No
Batrachoseps campi	Endangered (EN)	Threats unknown	Yes	Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					
Aneides hardii	Near Threatened (NT)	Threats are reversible in time frame	Yes	Yes	No	No
	Fire management would be helpful - Lannoo.					
Desmognathus planiceps	Data Deficient (DD)	Threats unknown	Unknown	Unknown	Yes	No
	Added to this list by Dodd - added based on Crother et al.					
Anaxyrus microscaphus	Least Concern (LC)	Threats unknown	No	Yes	Yes	No

Species	Extinction risk	Threat mitigation	Protected habitat	Population recovery	Phylogenetic study	Over-collection
	Small range in desert; kept in captivity at Silver Springs.					
Lithobates heckscheri	Least Concern (LC)	Threats unknown	No	Yes	Yes	No
	Dodd - populationss have been lost. Natural history/reproductive stages lacking (eggs not documented).					
Eurycea chamberlaini	Data Deficient (DD)	Species does not require conservation action	No	Yes	Yes	No
	Recently split off of quadridigitata per Dodd, but more phylogenetics pending.					
Aneides aeneus	Near Threatened (NT)	Species does not require conservation action	No	Yes	No	No
	Bred by Toledo Zoo and Russ Cormack (private); work has been done for possible taxonomic revision per Dodd; only eastern of genus.					
Necturus beyeri	Least Concern (LC)	Species does not require conservation action	No	Yes	No	No
	Kept in Central FL, Miss River Museum and Jacksonville.					
Necturus punctatus	Least Concern (LC)	Species does not require conservation action	No	Yes	No	No
	Phylogenetic research needed.					
Batrachoseps diabolicus	Data Deficient (DD)	Threats unknown		Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					
Batrachoseps gabrieli	Data Deficient (DD)	Threats unknown	Yes	Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					
Batrachoseps incognitus	Data Deficient (DD)	Threats unknown	Yes	Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					
Batrachoseps kawia	Data Deficient (DD)	Threats unknown		Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					
Batrachoseps minor	Data Deficient (DD)	Threats unknown		Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					
Batrachoseps relictus	Data Deficient (DD)	Threats unknown		Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					
Plethodon kiamichi	Data Deficient (DD)	Threats unknown	Yes	Unknown	Yes	No
Eurycea robusta	Data Deficient (DD)	Threats are reversible in time frame	No	Unknown	Yes	No
	Chippendale/Gluesenkamp/Chamberlin - southern Edwards' Plateau; known from very few specimens which hasn't been seen in a while; exceptional because of extreme troglobitism.					
Plethodon wehrlei	Least Concern (LC)	Threats are reversible in time frame	No	Yes	No	No

Species	Extinction risk	Threat mitigation	Protected habitat	Population recovery	Phylogenetic study	Over-collection
	Warrants phylogenetic work (Lannoo); hydrofracking impacting habitat loss; Barrett questioned that some would be impacted, but across the range would be fine (and we have been mostly consistent with this unless an isolated critical species).					
Pseudacris cadaverina	Least Concern (LC)	Species does not require conservation action	Yes	Yes	No	No
	Becklin - basking behaviours have lead researchers to investigate its potential for sunscreen development.					
Desmognathus monticola	Least Concern (LC)	Species does not require conservation action	No	Yes	Yes	Unknown
	Kast - bred at Toledo per ISIS; Weir - bait species but impact unknown.					
Desmognathus welteri	Least Concern (LC)	Species does not require conservation action	Unknown	Yes	Yes	Unknown
	Barber - major threat is siltation mining and Lannoo - bait industry as well, but impacts all unknown.					
Pseudotriton montanus	Least Concern (LC)	Species does not require conservation action	No	Yes	No	No
	Dodd - systematics may change within this group once phylogenetics performed.					
Pseudotriton ruber	Least Concern (LC)	Species does not require conservation action	No	Yes	No	No
Stereochilus marginatus	Least Concern (LC)	Species does not require conservation action	No	Yes	No	No
Batrachoseps robustus	Near Threatened (NT)	Threats unknown		Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					
Plethodon aureolus	Near Threatened (NT)	Threats unknown	Yes	Yes	Yes	No
	Dodd - this used to be part of the glutinosus complex, but now that it separated out, not much is known about it (what makes it unique to the complex).					
Smilisca fodiens	Least Concern (LC)	Species does not require conservation action	No	Yes	No	No
	Dodd - small range in US, but probably considered healthy population throughout entire range into Central America.					
Lithobates pipiens	Least Concern (LC)	Species does not require conservation action	No	Yes	No	No
	Weir - new species proposed as split from pipiens (Newman et al, 2012) in NY/NJ/CN.					
Rana luteiventris	Least Concern (LC)	Species does not require conservation action	Yes	Yes	No	No
	Quite a few reintroduction by state of UT (Hassock); Species complex phylogenetics still in progress.					
Eurycea quadridigitata	Least Concern (LC)	Species does not require conservation action	No	Yes	No	No
	Likely to be split into several different species in the next few years (four species).					

Species	Extinction risk	Threat mitigation	Protected habitat	Population recovery	Phylogenetic study	Over-collection
Plethodon serratus	Least Concern (LC)	Species does not require conservation action	No	Yes	No	No
	Chippendale - (4) disjunct pop clusters, phylogenetic work in progress (likely to be broken in to different species); Poole - LA population seems comparatively small and if broken out from this complex by genetic work may warrant change in status.					
Batrachoseps gavilanensis	Least Concern (LC)	Threats unknown	Yes	Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					
Batrachoseps gregarius	Least Concern (LC)	Threats unknown	Yes	Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					
Batrachoseps luciae	Least Concern (LC)	Threats unknown	Yes	Unknown	Yes	No
	Adam - ask David Wake/Hansen/Sam Sweet (threats/pop status?)					