<u>Salama</u>	ndra atra	<u>a</u>	Region:	10			
Taxonomic	Authority:	Laurenti, 1768					
Synonyms:			Common Names:				
			Alpine Sala	mander	English		
			Golden Salamander (Salamandra		English		
			salamandra	alpina (Salamandra atr	Italian		
			salamandra	alpina di aurora (S. a.	Italian		
Order:	Caudata		Family:	Salamandridae			
Notes on taxonomy:		This species is traditionally separated into thre status of these subspecies remains questional been sometimes considered to be a separate s differences, and be proposed the elevatation of	ole. S.a. prenj species. Joge	ensis is often not consid r (1996), using serum pr	lered to be valid. S.a oteins, showed sign		

This species is traditionally separated into three subspecies: Salamandra atra atra, S.a. aurorae, S.a. prenjensis. The status of these subspecies remains questionable. S.a. prenjensis is often not considered to be valid. S.a. aurorae has been sometimes considered to be a separate species. Joger (1996), using serum proteins, showed significant differences, and he proposed the elevatation of S.a. aurorae to a full species. Veith et al. (1998), analysing mitDNA of S.a. aurorae did not find any significant difference. Riberon et al. (2001) indicate a complex pattern of divergence for the alpine populations, without reaching or stressing any taxonomic consequences. Populations, intermediate in chromatism between the black S.a. atra and the bicolored S.a. aurorae have been recently discovered in Italy (F. Andreone pers. comm.).

General Information

Biome

Terrestrial

Freshwater

Marine

Geographic Range of species:

This species is present in the European Alps (including a recently discovered population close to the village of Samoëns in the Département de la Haute-Savoie, France), with isolated populations in the Balkan Dinaric Alps in Slovenia, Croatia, Bosnia-Herzegovina, Serbia-Montenegro and northern Albania. It occurs at elevations between 400 and 2800m asl (more frequent between 800 - 2,000m asl). The subspecies Salamandra atra aurorae is largely restricted to the Bosco del Dosso and Val Rensola in north-east Italy (between 1,300 and 1,800m asl); new localities extending to the east were discovered in the early 1990s (with a distance between furthermost sites of 15km2), and it is possible that this subspecies may occur in the entire forested high plateau of the area. Further field surveys are needed to verify the full distribution of Salamandra atra aurorae.

Conservation Measures:

Salamandra atra is listed on Appendix II of the Berne Convention and Salamandra atra aurorae is listed on Annex II of the EU Natural Habitats Directive under the name 'Salamandra salamandra aurorae'; both Salamandra atra and 'Salamandra aurorae' are also listed on Annex IV of the Directive. The species is protected by national legislation in most range countries (eg. Switzerland, Slovenia) and it is present in a number of protected areas. Kalezic and Dzukic (2001) suggest the establishment of a protected area on Prokletije Mount would significantly aid the conservation of S. atra in the Dinaric Alps. The subspecies S. a. aurorae is present in the Natura 2000 sites of Cima Dodici (10,450 ha) and Pasubo e Piccole Dolomiti: Monte Pasubo (1,920 ha).

Species population information:

It is still be abundant in Switzerland (although now considered to be extinct in some southern parts of the country), Germany, Austria and parts of Italy. It appears to be more rare and threatened in the Dinaric Alps in Slovenia, Croatia, Bosnia-Herzegovina, Serbia-Montenegro and northern Albania (e.g., Kalezic and Dzukic, 2001). Gasc et al. (1997) considered Salamandra atra aurorae to be highly endangered.

Habitat and Ecology Information:

It is found in cool, damp alpine meadows, stony pastures, dwarf heath and mixed, broadleaf and coniferous woodland. Animals are usually hidden below stones and logs, but can be encountered in shady places, or after rain, during the day. The species is unusual in that it has a oviviviparous method of reproduction by which it gives birth on land to an average of two fully metamorphosed offspring; the gestation period is between two and four years. It may be found in pastureland and other slightly modified habitats. It is not associated with water.

Threats:

There are generally no threats to the Italian populations of S.a. atra. Some local populations in Switzerland are threatened by road mortality and populations of the Dinaric Alps are threatened by localised habitat destruction through intensification of farming methods, tourism (skiing) and infrastructure development. The subspecies S.a. aurorae are threatened by collection for scientific purposes and the pet trade and general habitat alteration through excessive water abstraction from streams, and the removal of ground cover during forestry practices. Populations in Serbia-Montenegro are small, fragmented and threatened by over-collecting for the pet trade and possibly climatic changes.

Country Distribution	Native - Presence Confirmed	Native - Presence Possible	Extinct	Reintroduced	Introduced	Vagrant
Albania	\checkmark					
Austria	\checkmark					
Bosnia and Herzegovina	\checkmark					
Croatia	\checkmark					
France	\checkmark					
Germany	\checkmark					
Italy	\checkmark					
Liechtenstein	\checkmark					
Slovenia	\checkmark					
Switzerland	\checkmark					

Native -

Presence

Confirmed

Native -

Presence

Possible

Extinct Reintroduced Introduced

FAO Marine Habitats

Major Lakes

Major Rivers

.4 Gra	rest - Temperate assland - Temperate ificial/Terrestrial - Pastureland			1	Cold G	heelees				9
	•			1						9
1.2 Arti	ificial/Terrestrial - Pastureland			1			Cool Broadleaf Forest			
				1	Cool C	onifer For	est			1
					Decidu	ious Broad	dleaf Woo	bd		1
					Forest	and Field				1
					Grass	Crops				9
					Mixed	Forest				1
lajor t	threats				Cons	ervatio	n Meas	ures		
ode [Description of threat	Past I	Present F	uture	Code	Conserva	ation me	asures	In place	Neede
F	Habitat Loss/Degradation (human induced)	\checkmark	\checkmark	\checkmark	1	Policy-ba	sed actio	ns	\checkmark	
.1 A	Agriculture		\checkmark	~	1.2	Legislatic	n			
	Crops	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	\checkmark	✓	1.2.1	Developr				
.1.1.3 A	Agro-industry farming	~	\checkmark		1.2.1.1	Internatio				
.1.4 Livestock		~	\checkmark		1.2.1.2	National	level			
1.1.4.3 Agro-industry		~	\checkmark	\checkmark	1.2.2	.2.2 Implementation				
.3 Extraction		~	\checkmark			1.2.2.1 International level				
.3.6 0	Groundwater extraction		\checkmark		1.2.2.2	.2.2.2 National level				
.3.7 C	Other	~	\checkmark	✓	3	Research	actions			~
.4 lr	Infrastructure development		\checkmark	✓ 3.1 Taxonomy					V	
	•		\checkmark	\checkmark	3.2	5				
.4.3 T			\checkmark	✓	3.3					 Image: A start of the start of
Ir	Intrinsic factors		\checkmark		3.4					
9.2 Poor recruitment/reproduction/regenera		✓ ✓			3.5	Threats				 Image: A start of the start of
					3.8	Conserva	ation mea	sures		 ✓
					3.9	Trends/M				✓
					4	4 Habitat and site-based actions				 ✓
					4.1					✓
					4.4		ected areas			✓
						4.4.1 Identification of new protected areas		w protected areas		✓
					4.4.2	Establish				V
					4.4.3	Managen			\checkmark	✓
tilisatic	on of Species									
-	/Type of Use /display animals, horticulture	Sub	sistence	I	National	Interna	ational	Other purpose:		
		00%	>75%	51	-75%	26-50%	<25%	Other forms removed	from the w	ild:
1. Whole animal/plant										
		00%	>75%	51	1-75%	26-50%	<25%	Other source of speci	mens:	
Vild	V			[
rend in	wild offtake/harvest in relation to total v		pulation	num	bers ov	er last fiv	e years:	Unknown		
	offtake/harvest produced through dome Not listed	-	-				-	Unknown		

Red List Criteria:

Rationale for the Red List Assessment: Listed as Least Concern in view of its wide distribution, tolerance of a degree of habitat modification,

presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category.

Current Population Trend: Decreasing Date of Assessment: 12/17/2004

Assessor(s): Franco Andreone, Mathieu Denoël, Claude Miaud, Benedikt Schmidt, Paul Edgar, Milan Vogrin, Jellka Crnobrnja Isailovic, Rastk

Notes on Red listing: The subspecies Salamandra atra aurorae qualifies for listing as Critically Endangered under criterion B1ab(iii) because its Extent of Occurrence is probably less than 100 km2, all individuals may be in a single location, and there is continuing decline in the quality of its habitat in the Bosco del Dosso. The populations in Croatia, Bosnia-Herzegovina, Serbia-Montenegro, and Albania are probably threatened.

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