Long-term monitoring of Tiger Salamanders, Ambystoma tigrinum, in the Boulder foothills

Progress Report

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The goal of the current study is to assess the long-term population status of the tiger salamander (Ambystoma tigrinum) in the Boulder foothills. Salamander populations are to be sampled 3-5 times per year for three years as a follow up to previous population density research I performed in 1974-1975 (1975a; 1975b; 1986). The following is a progress report of findings for the period from May '95 to September '95.

Using seining methods, salamander populations were sampled from four ponds on Shanahan Hill on five different days (table 1). The greatest number of salamanders were caught in Shanahan Pond, 312 neotenes and 6 terrestrial morphs. It should also be noted that several introduced minnows, believed to be Tanichthy albonubes, were captured in Shanahan Pond. This species is small and, based on informal results, does not appear to have affected the native vertebrates to date. Substantial numbers of both terrestrial (11) and neotenic forms (109) were caught in Pollywog Pond. No terrestrial morphs were seined from Salamander Pond, but 35 neotenes/larvae were obtained. The lowest salamander numbers came from Abbey Pond - 4 larvae/neotenes and 4 terrestrial morphs. This is a surprising result, for previous population studies indicated the densest population (more than 300) of neotenes in this pond (Rodda 1975a, 1975b). A possible cause for the decline may be the establishment of a population of crayfish believed to be the non-native Orconectes virilis. Crayfish are omnivorous predators which are known to feed on salamander and frog eggs and larvae. The disappearance of the population that was the primary subject of the 1974 sampling makes it unlikely that any individuals marked in that earlier study are still alive. There is a remote possibility that some of the previously-marked terrestrial morphs will eventually be found. Three of the aforementioned ponds, Pollywog, Salamander and Abbey, also contained large numbers of Pseudacris tadpoles and/or froglets. Salamander Pond, despite its name, contained the fewest salamanders or other frog predators (i.e., no crawfish), and it produced large numbers of chorus frogs this year.

Because they must be successful in both terrrestrial and aquatic environments, amphibians are uniquely sensitive to precipitation and water levels. As a result of weather fluctuations, wide annual variation in amphibian numbers is normal (Heyer et al., 1994). Therefore, estimates of population sizes need to be evaluated over several years, to reduce short-term population "noise." This study

will incorporate three years of data, after which the densities of each tracked population will be carefully analysed for long term trends and their interpretation.

Table 1. Number of individual Ambystoma tigrinum caught at each pond by date.

POND	DATE	# OF NEOTENES	# OF TERRESTRIAL MORPHS	TOTAL
Shanahan	18MAY	52	4	56
	01JUN	54	2	56
	27JUN	77	0	77
	03AUG	58	0	58
	13SEP	71	0	71
Pollywog	18MAY	0	1	1
	01JUN	0	4	4
	27JUN	91	6	97
	03AUG	18	0	18
	13SEP	0	0	0
Salamander	18MAY	0	0	0
	01JUN	0	0	0
	27JUN	19	0	19
	03AUG	16	0	16
	13SEP	0	0	0
Abbey	18MAY	0	2	2
	01JUN	0	1	1
	27JUN	0	1	1
	03AUG	4	0	4
	13SEP	0	0	0

LITERATURE CITED

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