

**UNITED STATES GOVERNMENT  
U.S. FISH AND WILDLIFE SERVICE  
MEMORANDUM**

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DATE: July 25, 2006

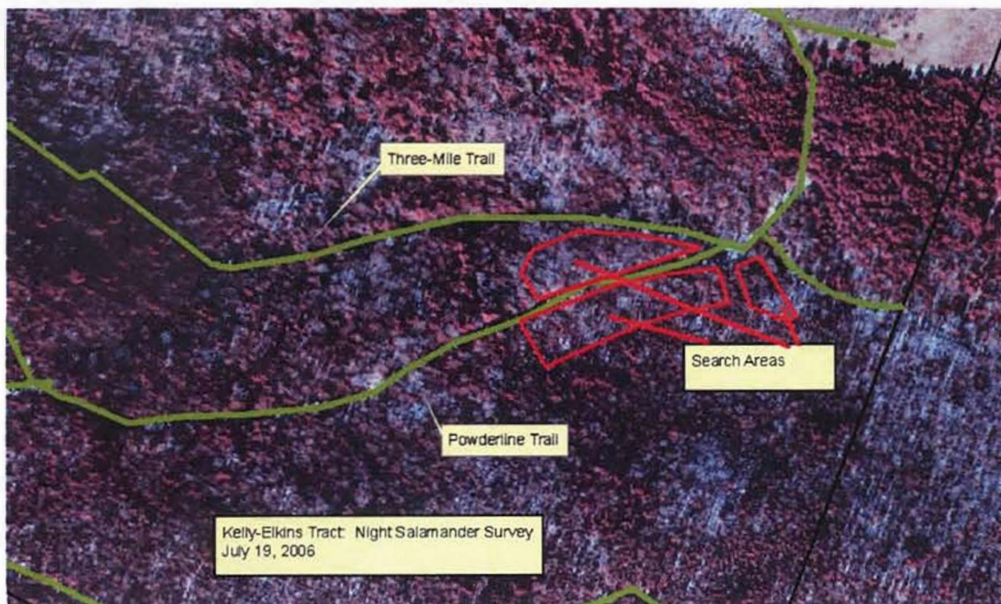
TO: Files; Cheat Mountain Salamander

FROM: Ken Sturm; Wildlife Biologist

SUBJECT: Area Search for Cheat Mountain Salamanders

A night time area search was conducted for Cheat Mountain salamanders (*Plethodon nettingi*) on the evening of July 19, 2006. A total of nine observers surveyed habitat along Three-mile trail and Powderline trail on the Kelly-Elkins Tract of the Refuge. The objective of the survey was to document Cheat Mountain salamander use on either side of Powderline ski trail or Three-Mile ski trail in an effort to continue to evaluate the potential impacts of these trails on salamander populations.

A total of 5 observers surveyed the habitat on the uphill side of Powderline skit trail, while 4 observers surveyed the area between Powderline ski trail and Three-mile ski trail. Observers were spaced roughly two meters apart and ran transects parallel with Powderline ski trail. Surveys were conducted by visually counting all salamanders encountered along the transect. All cover objects were turned along the transect, and observations were made on tree trunks and shrubs. A total area of approximately 2.2 acres was covered during surveys along the ski trails. Surveys began a 9:37 pm (official sunset at 8:41 pm) and concluded at 11:15 pm. Temperatures were consistent during the survey at 20°C at beginning and end times. Rain had occurred in patchy locations during the day; however the leaf litter was fairly dry during the survey. The areas surveyed are shown below.



Night salamander survey location on Kelly-Elkins Tract

A total of x salamanders were captured on both survey areas: x above Powderline trail and 55 between Powderline trail and Three-mile trail. Only one Cheat Mountain salamander was captured during these surveys. It was found in the habitat above (upslope side) of Powderline trail approximately 4 feet up in a yellow birch tree. The table below shows salamander species found during surveys above and below Powderline trail.

Species	Number Above Powderline	Number Below Powderline
<i>Plethodon nettingi</i>	1	0
<i>Plethodon cinereus</i>	12	28
<i>Desmognathus ochrophaeus</i>	42	26
<i>Notophthalmus v. viridescens</i>	0	1
<b>TOTAL NUMBER SALAMANDERS</b>	<b>55</b>	<b>55</b>

One additional site was surveyed for Cheat Mountain salamanders, just upslope from Three-mile trail before the junction of Powderline ski trail. The site consisted of mixed spruce and hardwood forest with large boulders. Boulders had moss and in most cases vegetation growing on their top surfaces. A total of nine observers began the survey at 11:30pm and concluded at 12:15 pm. Temperatures at this site started and ended at 18°C. The general location of this site is 17S NAD 83: 637575 4319036 (+/- 7 meters).

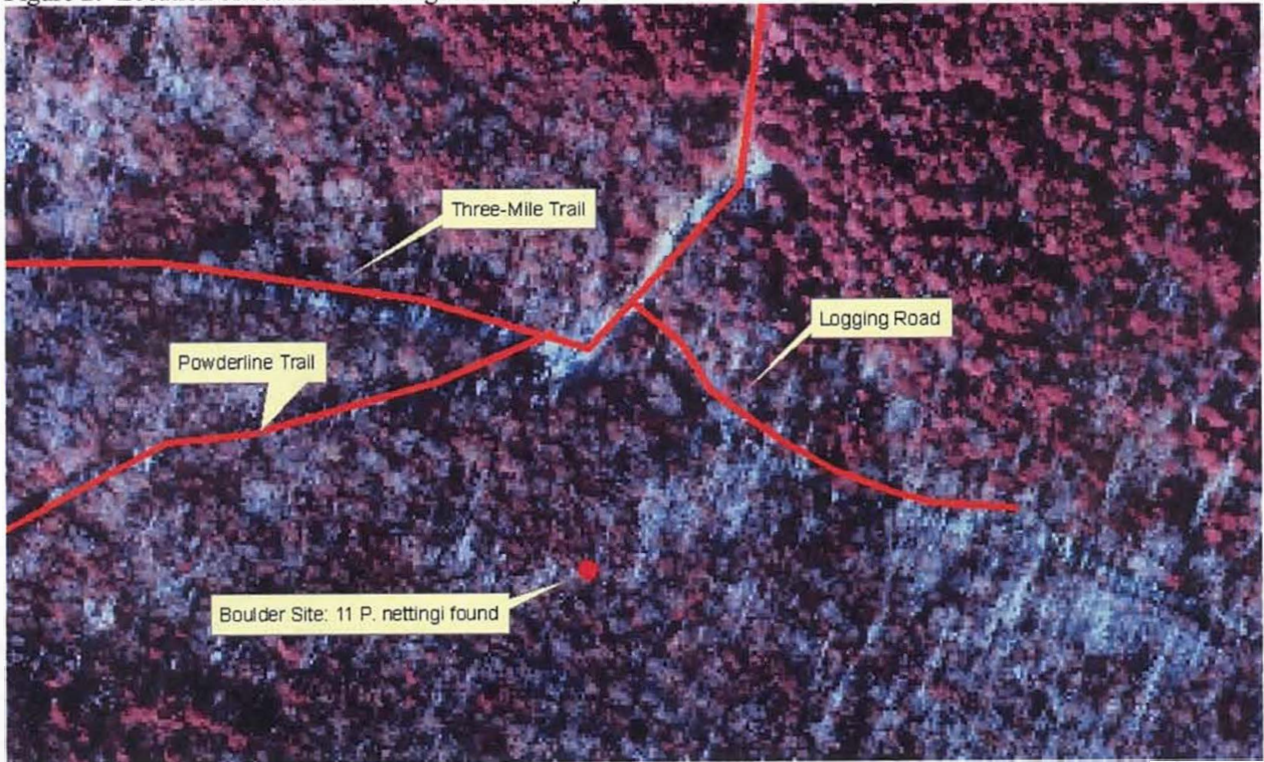
A total of 11 *P. nettingi* were found in this area including several different size classes. Snout to vent lengths ranged from 22 mm to 45 mm. Weights ranged from 0.4 grams to 1.4 grams. All measurements are shown in Table 2. The only other species found in this area during surveys were *P. cinereus*. All the *P. nettingi* were found on or directly adjacent to the large boulders. Many were found in between the moss layer and the boulder. Although this was a previously known occupied site for *P. nettingi*, no area searches had been conducted at this location. Based on the number of *P. nettingi* captured during a short period of time, as well as the different size (and therefore age) classes found, this site appears to be of high habitat quality for this species. Future surveys should attempt to map the size of this population more accurately. Night surveys at this site appear to be highly productive.

Table 2: *Plethodon nettingi* captured at second survey site (637575 4319036)

Snout-Vent Length (mm)	Total Length (mm)	Mass (g)
22	50	0.5
22	56	0.4
33	69	0.9
34	64	0.8
39	88	1.2
40	83	1.2
42	75	1.0
43	80	no data
44	96	no data
45	86	1.4
45	90	1.3

Because of the apparent high density of *P. nettingi* at the second site it should be revisited in an attempt to define the total area occupied. Two habitat breaks occur to the north and west which may be important fragmentation sites limiting population movements. Both are old logging roads: Three-mile and Powderline trails to the north and an un-named logging road to the north-east (see Figure 2). Surveys on either side of the un-named logging road should be conducted to determine if populations occur on either side and help define the occupied area of *P. nettingi* on this section of the Kelly-Elkins Tract.

Figure 2: Location of boulder *P. nettingi* site with adjacent ski trails



(Big Rock - More up slope)

2) \* P netting: = (Didn't not weigh)  
SVL = 44 Total = 96

1) \* P netting: = 0.5g  
SVL = 22 Total = 50 ✓

3) \* P netting: = 0.9g  
SVL = 33 Total = 69 ✓

8) \* P netting: = (Didn't weigh)  
SVL = 43 Total = 80

2) \* P netting: 0.4g  
SVL = 22 Total = 56 ✓

4) \* P netting: 0.8g  
SVL = 34 Total = 64 ✓  
Missing part of tail ✓

Night CMS Kelly-Elkins Tract  
up slope of 3-mile trail  
Just before Junction of  
45 Powderline.

Cabin - Cheat 7/19/2006

\* 1 *P. nettingi* - 1.5g  
SVL = 32 mm Total = 98 mm  
In crotch of tree appx  
1M from ground

12 *P. cinereus*  
42 *D. ochrophaeus*

Big Rock  
⑥ \* *P. nettingi* - 1.2g  
SVL = 40 Total = 83

⑩ \* *P. nettingi* - 1.4g  
SVL = 45 Total = 86

⑤ \* *P. nettingi* 1.2g  
SVL = 39 Total = 88

⑪ \* *P. nettingi* 1.3g  
SVL = 43 Total = 90

⑫ \* *P. nettingi* 1.0g  
SVL = 42 Total = 75