

# Turtle Observer Program Report 2010



Marin Municipal Water District  
Kathryn Deery, AmeriCorps  
Eric Ettliger, Aquatic Ecologist  
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## **Introduction**

Marin Municipal Water District (MMWD) staff conducted a citizen science survey of the native western pond turtle (*Actinemys marmorata*) and non-native turtles, specifically the red-eared slider, found in the reservoirs of the Mt. Tamalpais watershed. This was the sixth turtle survey completed in District reservoirs since 2003. It was the second year using volunteers to collect data. Trappings were not done in 2010 due to lack of staff.

The goals for the 2010 observer program were to provide volunteers with experience in species identification and behavioral studies, determine the proportion of native to non-native turtles, and determine whether trapping needs to resume and where.

## **Methods**

MMWD staff trained 58 volunteers in turtle biology, observation skills, and visitor interaction. More than half of the trained volunteers participated in collecting data. Three main sites were identified for volunteers to make observations: Lake Lagunitas Dam, Bull Frog Trail along Bon Tempe Creek, and Alpine Lake below Bon Tempe Dam (Figure 1). Volunteers came out on their own time from mid-March through May to the three sites. They were also encouraged to observe along the whole shoreline of Lake Lagunitas, Bon Tempe Lake, and Alpine Lake.

Volunteers spent anywhere from a half hour to five hours at each location. Observations were recorded on a "Turtle Observation Data Sheet." The data sheet included the date, time interval, and weather. In order to assess the accuracy of species identification, volunteers recorded specific characteristics about each turtle observed. The volunteers were also asked to record notes about members of the public they interacted with, wildlife, or other interesting observations.

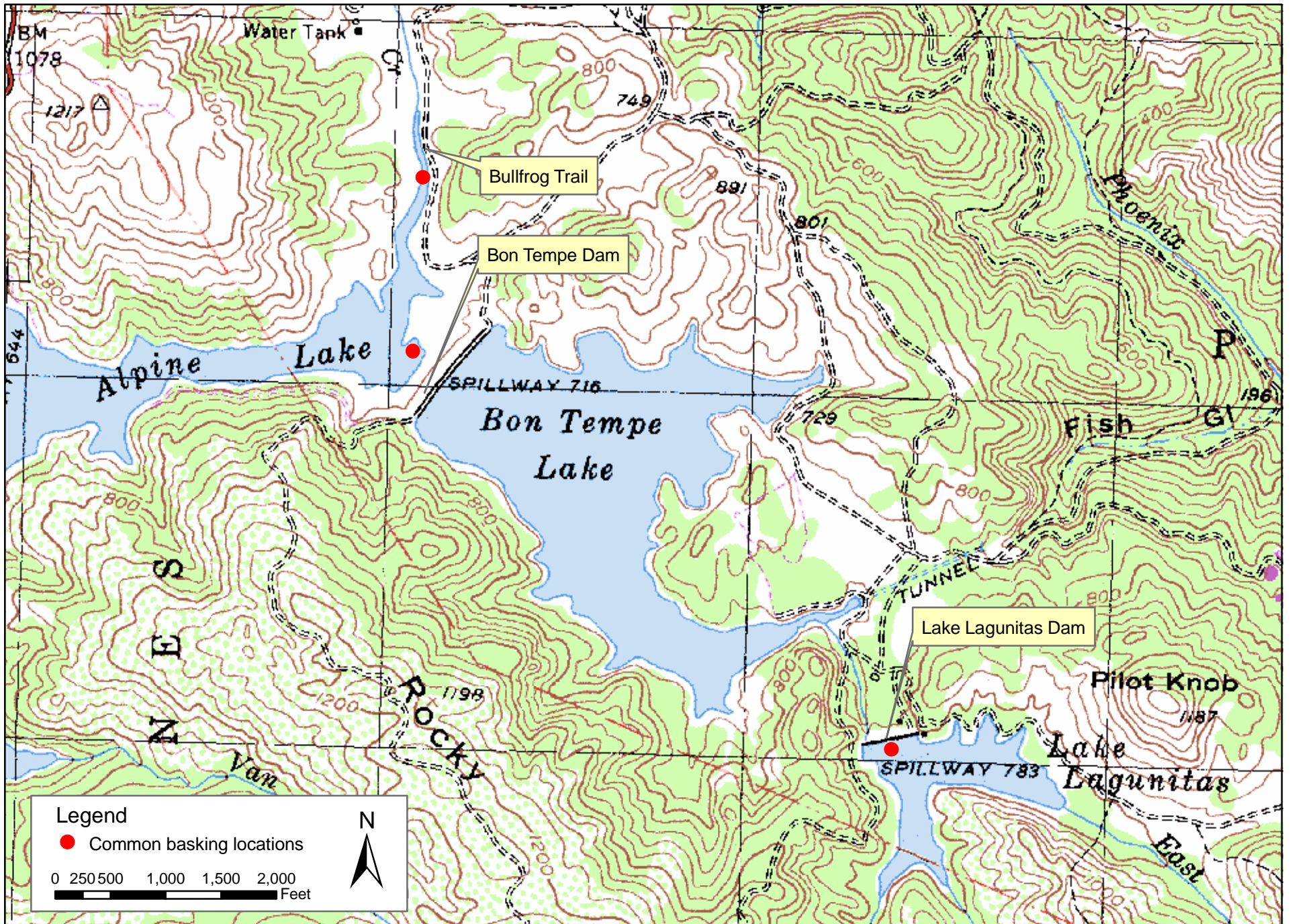


Figure 1. Turtle Observing Locations

Data sheets were collected and compiled for analysis. The observations were separated by location: Alpine Lake, Bull Frog Trail along Bon Tempe Creek, Lake Lagunitas, and Bon Tempe Lake. We further simplified the data by identifying the high counts of western pond turtles, red-eared sliders, and high counts of all turtles including unknowns for each calendar date. Population size was estimated by eliminating the highest count unless that count was made by at least two observers or the same person on multiple days per location.

## Results

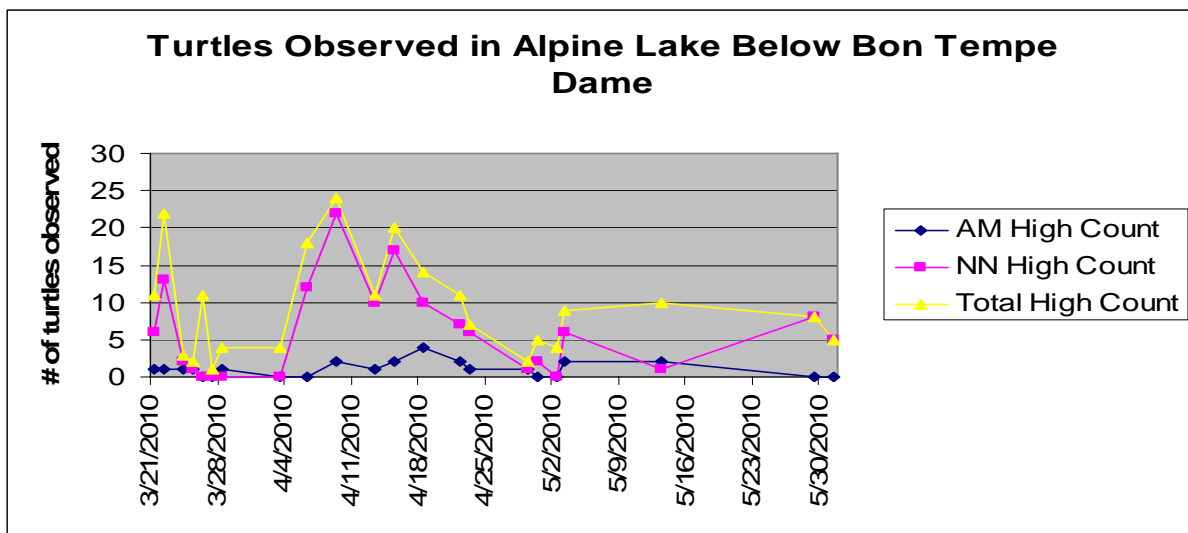
The 35 participating volunteers made a total of 131 visits to the reservoirs for a total of 251 hours. The volunteers made 728 individual observations. The breakdown of the raw data was 316 western pond turtles, 220 red-eared sliders, and 192 unknown. Volunteer participation increased from 2009, where seven volunteers made forty visits for a total of 121 hours of observing.

Each graph shows the high count for western pond turtles (AM), non-native turtles (NN), and a total high count for each day observations were done from March to May at one of the locations.

### Alpine Lake

The population for Alpine Lake was estimated as two western pond turtles and 17 non-native turtles.

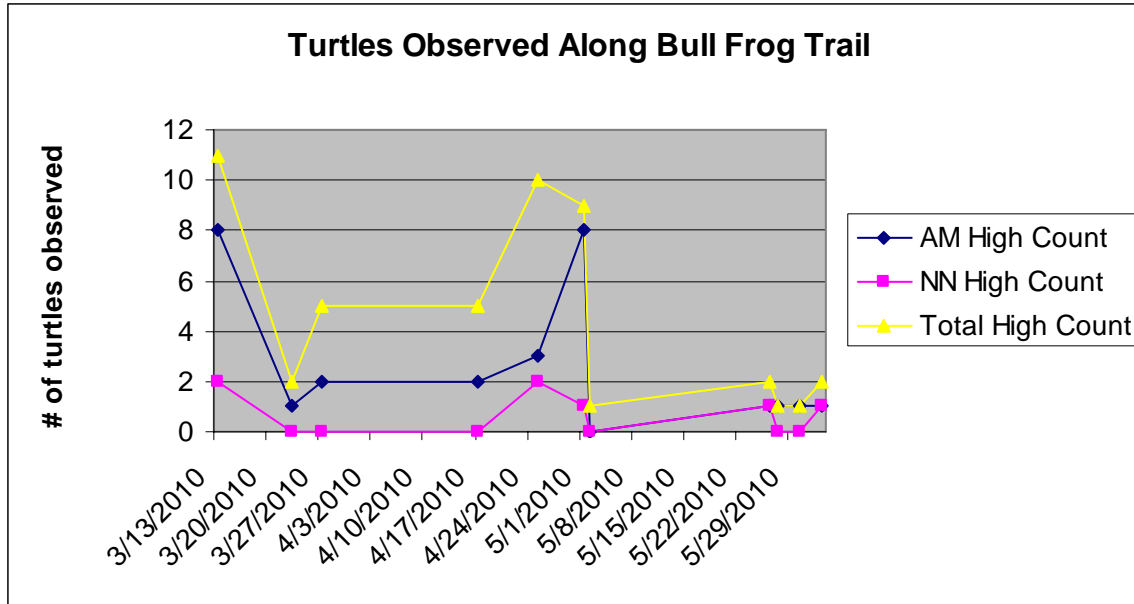
**Figure 2**



Bull Frog Trail along Bon Tempe Creek

The population for Bon Tempe Creek was estimated as eight western pond turtles and two non-native turtles.

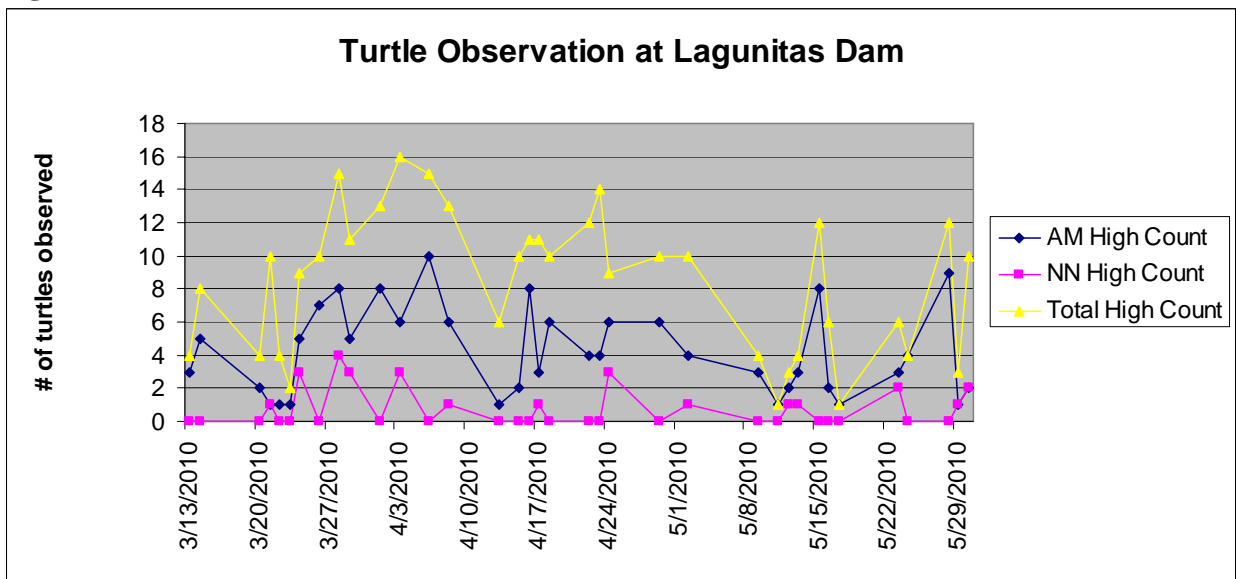
**Figure 3**



Lake Lagunitas

The population for Lake Lagunitas was estimated as nine western pond turtles and three non-native turtles.

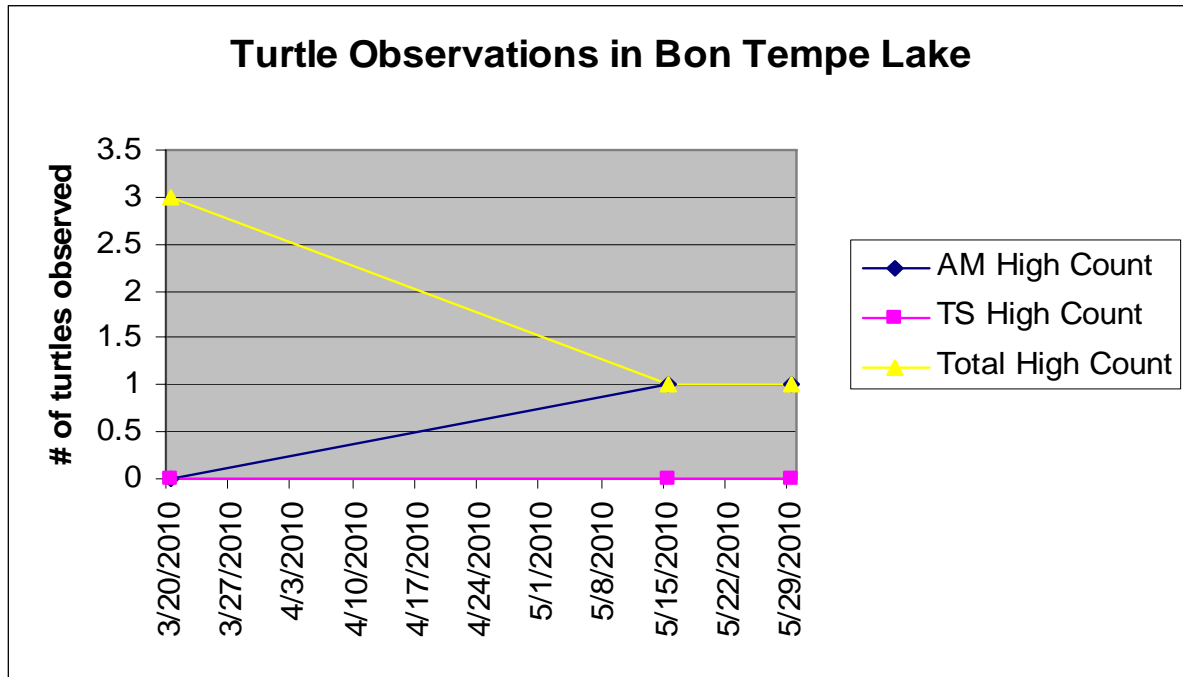
**Figure 4**



## Bon Tempe Lake

The population for Bon Tempe Lake was estimated as one western pond turtle.

Figure 5



## Discussion

The 2010 observer program succeeded in completing the set goals. Fifty eight volunteers were trained in and more than half gained experience in identifying several different species of turtles and were able to make comments on interesting turtle behavior. Observers recorded the native and non-native turtles competing for basking space, mating, and segregating by species. Interesting wildlife seen by observers includes cormorants, hunting ospreys, blue tail skinks, a swimming muskrat, bald eagle, otter, and frogs.

Three girl scouts participated in the program for their silver award project. In addition to observing, they participated in habitat restoration events, gave a presentation to their school, created a flyer for pet stores, and set up a table to educate visitors.

Non-native turtles appear to outnumber the western pond turtles in Alpine Lake. The 17 non-native turtles observed this year is similar to the approximately twenty non-native turtles observed basking at once in 2009. Trapping turtles in Alpine Lake should be a focus of future surveying efforts. Trapping would also be beneficial for identifying all the non-native species in MMWD's reservoirs, such as the red-eared slider and cooters.

In both Bon Tempe Creek and Lake Lagunitas the western pond turtles outnumber the non-natives. This suggests the native populations are faring well. In the 2009 Lake Lagunitas surveys, volunteers observed ten western pond turtles, but trapping suggested a population of seventeen turtles. One non-native turtle was captured and five were observed in 2009. Observer counts

were similar between years, so continuing surveys at Lake Lagunitas appears to be a lower priority.

Volunteers in future observer programs should be encouraged to educate visitors to the watershed. A visitor informed one of the observers that he had recently released a turtle into the reservoir. Additional signage may be necessary around Lagunitas Lake to discourage the release of unwanted turtles.

### **Suggestions for 2011**

- In 2010, the month of April was peak turtle viewing season, emphasize this in the training.
- Data Sheet
  - Change “time interval” to “time in” and “time out”. Observers would write the time they started but the length of their survey remained a mystery.
  - In the species column add unknown non-native (UNN) to AM, TS, and U.
- Offer a spotting scope for Alpine Lake below Bon Tempe Dam, because the turtles in Alpine are very skittish and will jump off the log as you approach. Use a system to sign the scope in and out to individual observers. The scope would not be available on weekends because it is needed by the frog docents.

