

Frog and Toad Survey 2014

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Abstract

Survey sites with American bullfrog, boreal chorus frog, Cope's gray treefrog, gray treefrog, green frog, northern cricket frog, spring peeper, and wood frog were above their long-term averages. Of the twelve Wisconsin anuran species, seven showed an increase in percent occurrence in 2014 from the 2013 levels. The number of frog survey routes that were run increased from 96 in 2013 to 130 in 2014. This number falls short of our goal of two routes per county.

Introduction

The Wisconsin Department of Natural Resources (WDNR) has coordinated a volunteer frog and toad survey since 1984. The survey arose from concerns about declines in populations of some frog species and was endorsed and expanded by the WDNR Surveys committee in 1990. Wisconsin has twelve anuran species. One species (Blanchard's cricket frog) is endangered and four species (American bullfrog, mink frog, northern leopard frog, and pickerel frog) are included on the Natural Heritage working list as "special concern". In general, anurans are considered to be good indicator species for the habitats where they are found. In 2008, the Society for the Study of Amphibians and Reptiles changed the naming convention of five species; bullfrog to American bullfrog, Blanchard's cricket frog to northern cricket frog, eastern American toad to American toad, eastern gray treefrog to gray treefrog, and northern spring pepper to spring peeper. Recent genetic sampling in cricket frogs of the genus *Acris* documents the Blanchard's cricket frog (*Acris blanchardi*) as a distinct and separate species and not a subspecies of the northern cricket frog (*Acris crepitans*) (Gamble et al. 2008).

Methods

Survey routes are distributed statewide, with a goal of two survey routes in each county of Wisconsin. Survey routes consist of 10 sites which are monitored three times yearly, in 2014 the surveys periods were 8-30 April for the southern half of the state and 8 April to May 7th for the northern half of the state. This being so, because the northern half was delayed by the onset of spring. The other survey periods stayed the same. For instance the 2nd period was still 20 May through 5 June, and the 3rd was 1-15 July. Surveys are started at dusk on evenings with wind velocities of less than eight miles per hour. Water temperature is recorded at each stop where possible. The occurrence of each frog species is determined at each site by presence or absence of their call. The abundance of each species is ranked by the relative number of calling individuals. Stops with species calling in which individuals can be counted and there is no overlap in calls has an abundance rank of 1. When calls of individuals can be distinguished but there is some overlapping of calls the abundance rank is 2. When calls are constant, continuous and overlapping (full chorus), the abundance rank is 3. Percent occurrence is determined for each species specific geographic range and peak calling periods. Survey data are analyzed using the Statistical Analysis System (SAS). The calling index for each species was summed to provide an index to the route population each year. These route populations are regressed on time to create a species population trend.

Results

The number of survey routes increased from 96 in 2013 to 130 in 2014. Observers increased from 93 in 2013 to 132 in 2014 (Fig. 1). The number of routes run in each county is still below our goal of two per county (Fig. 2).

Of the 12 anuran species, seven showed an increase in percent occurrence in 2014 from 2013 levels. These were the American toad, boreal chorus frog, Cope's gray treefrog, gray treefrog, mink frog, northern cricket frog, and pickerel frog (Fig. 3). The northern leopard frog was below its previous year's occurrence levels and long-term mean. Population trends, based on the call index, for each anuran species can be reviewed in Figure 3.

Literature Cited

Gamble, T., P.B. Berendzen, H.B. Shaffer, D.E. Starkey, and A.M. Simons. 2008. Species limits and phylogeography of North American cricket frogs (*Acris: Hylidae*). *Molecular Phylogenetics and Evolution* 48:112–125.

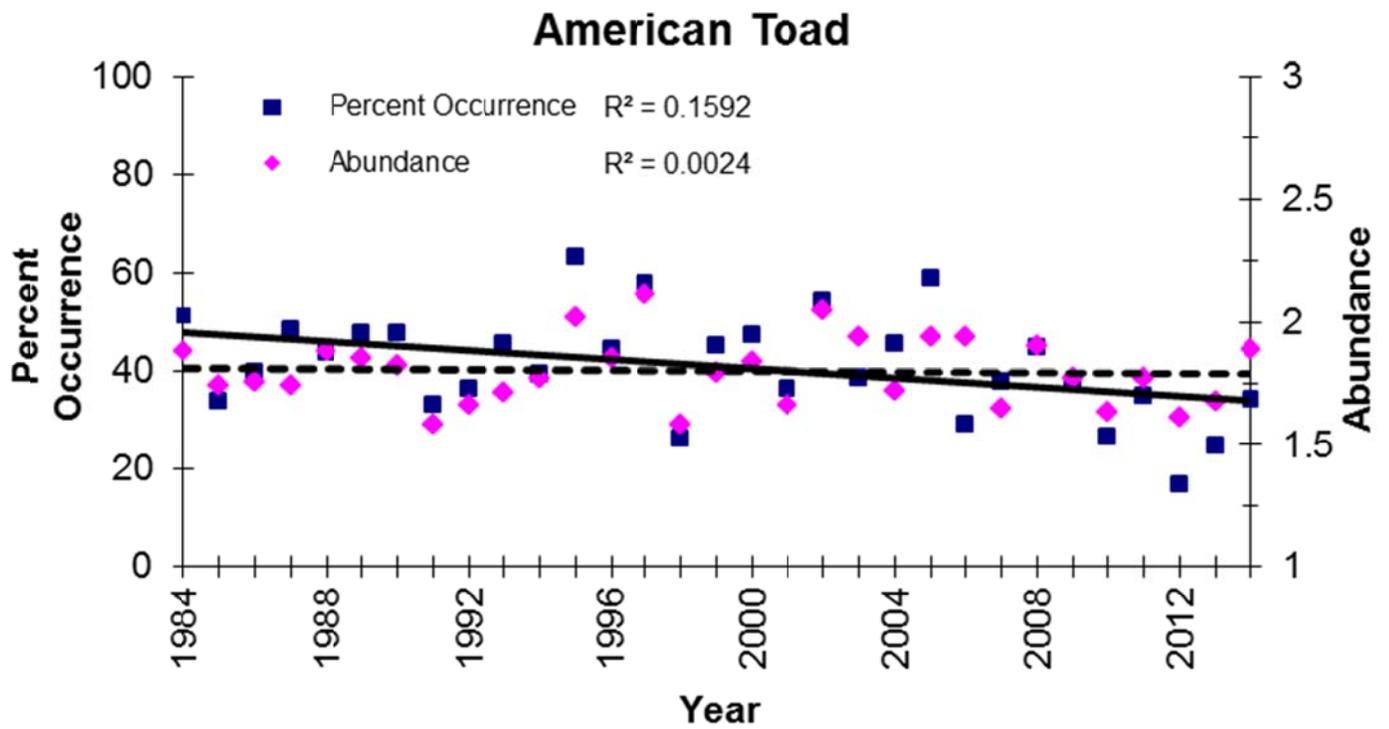
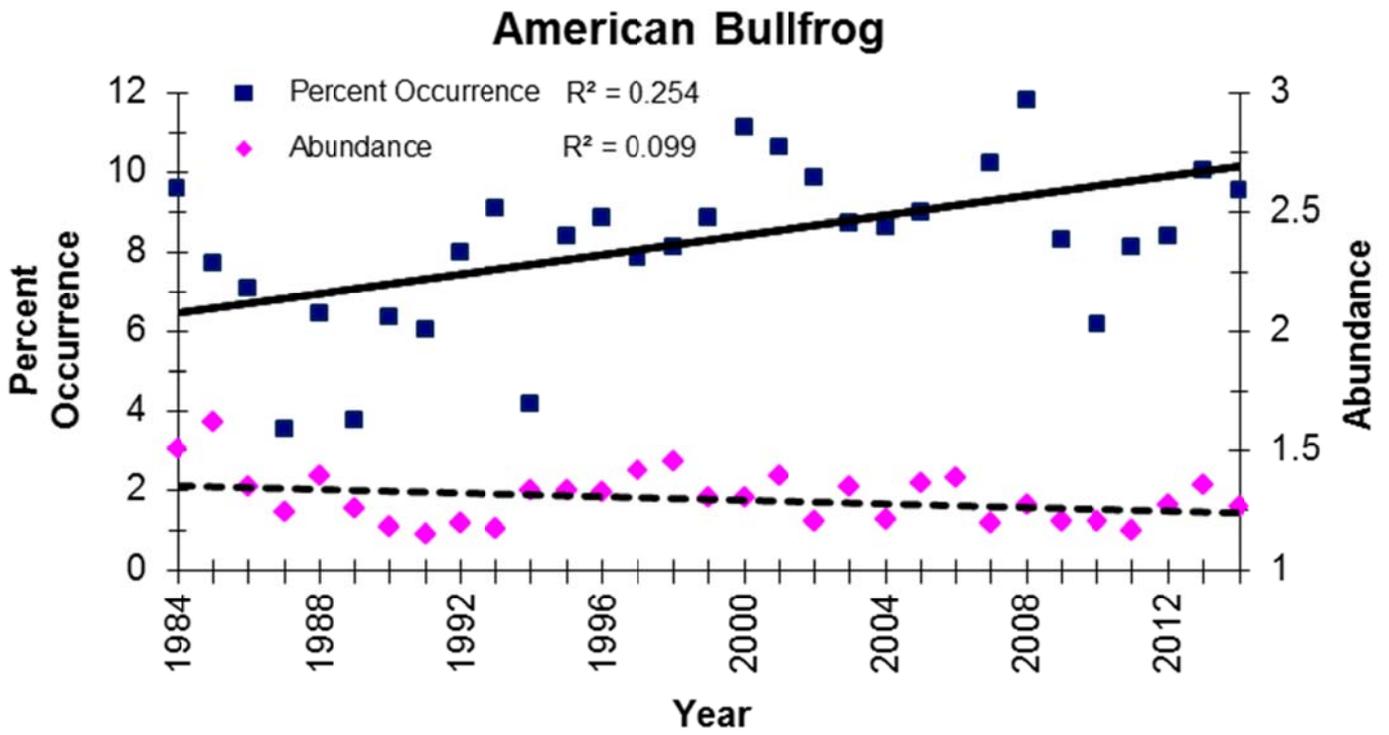


Figure 3. Percent occurrence and abundance of the 12 anuran species in Wisconsin, 1984-2014.

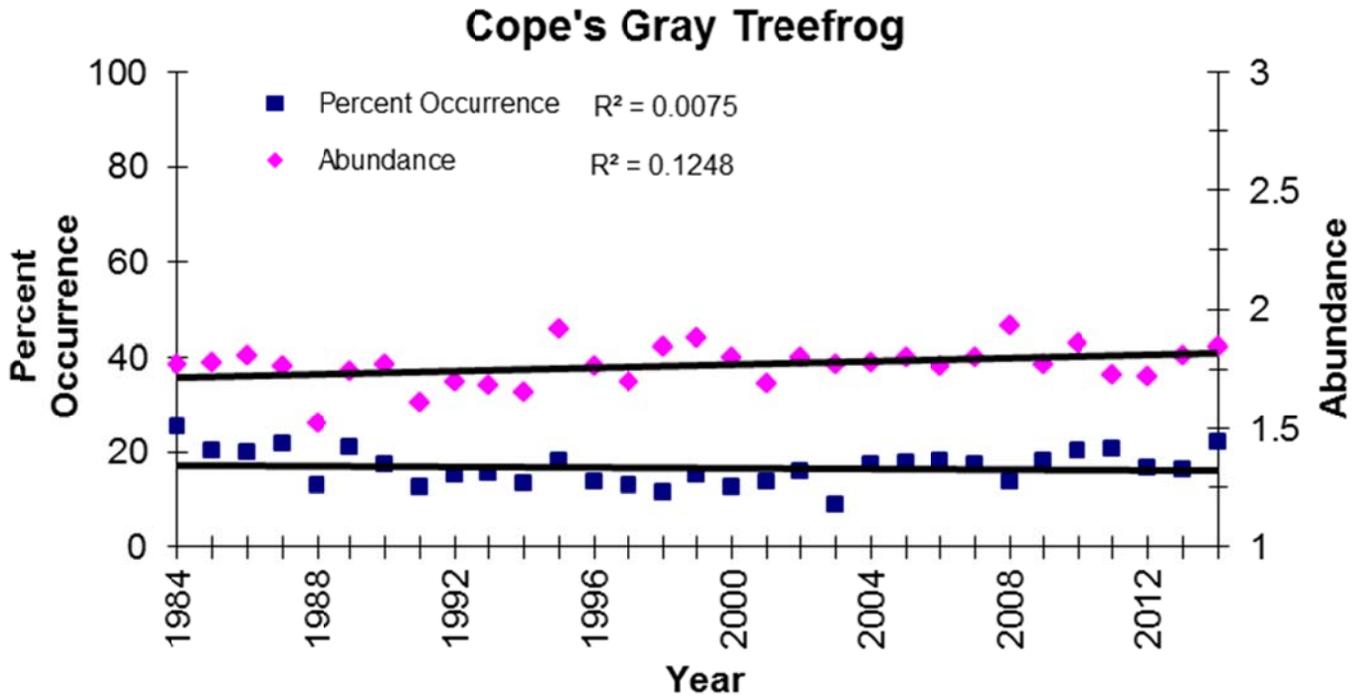
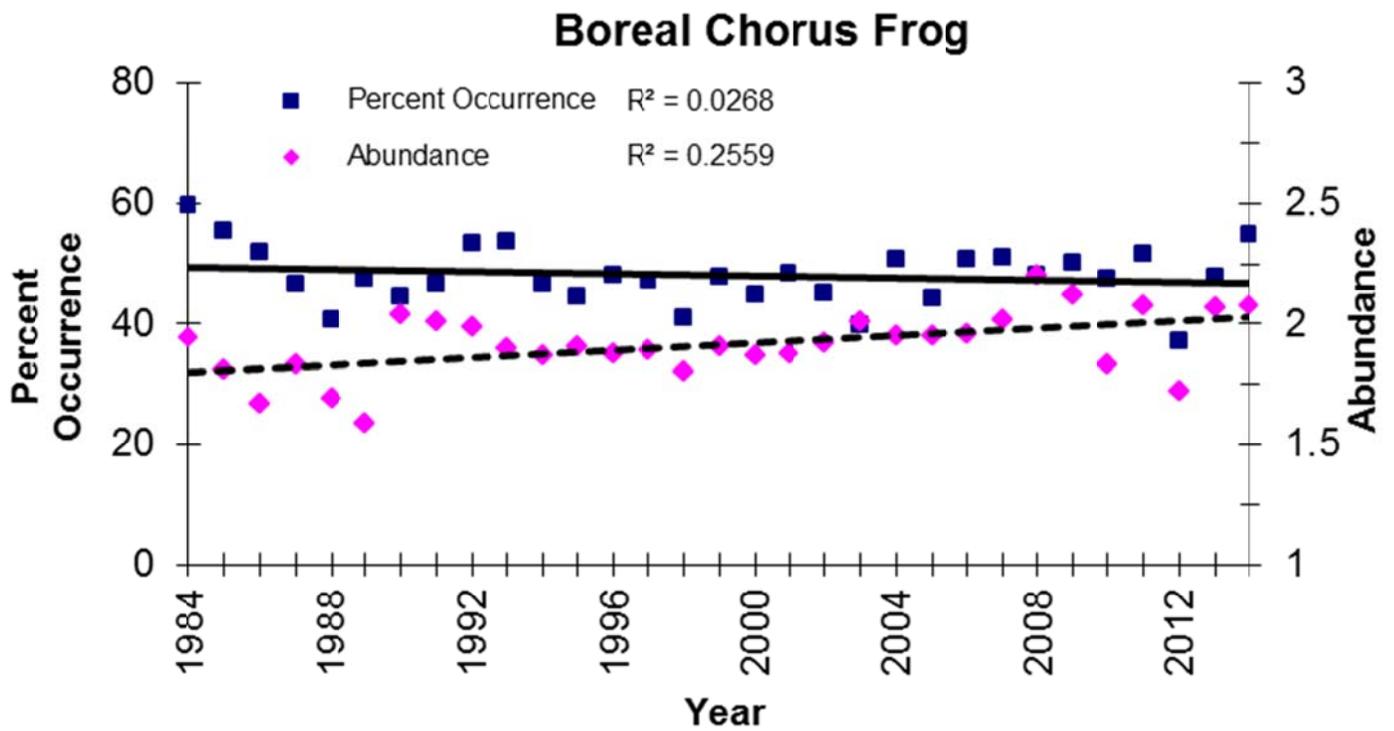


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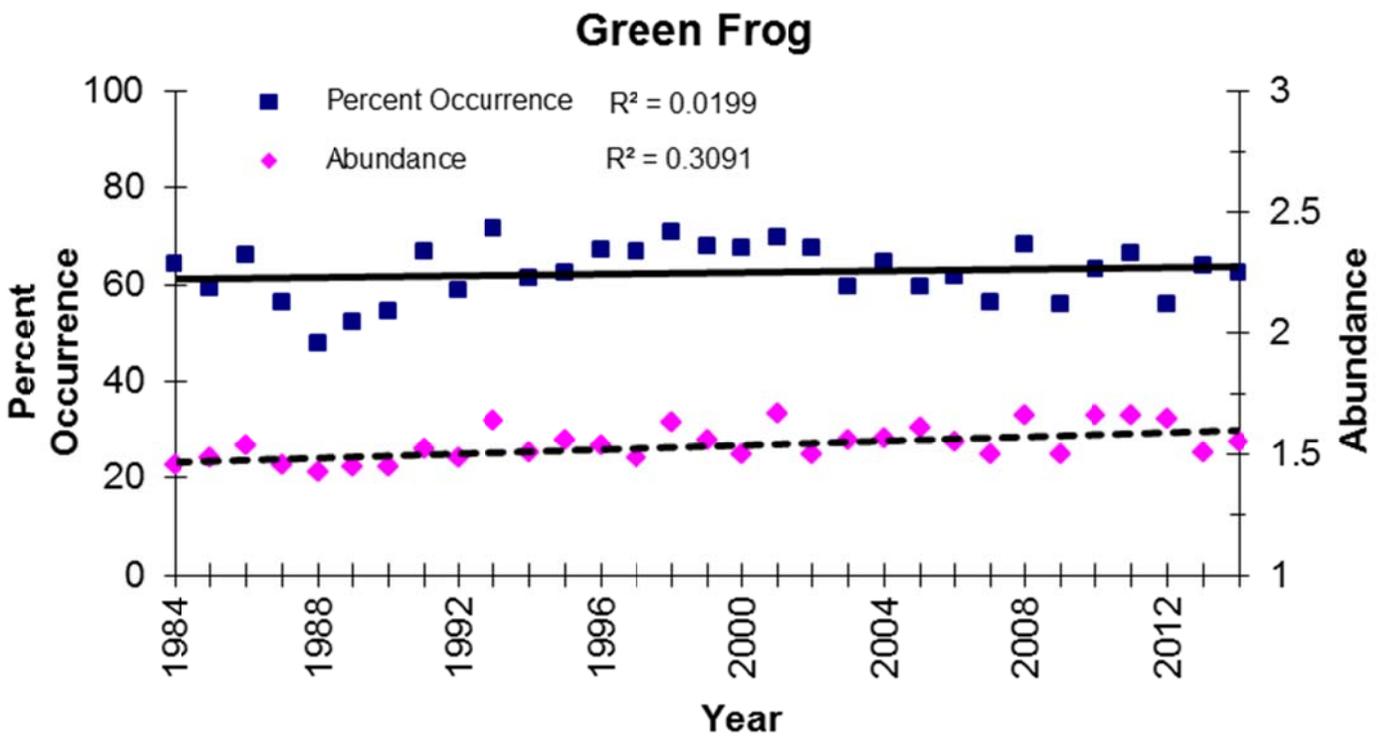
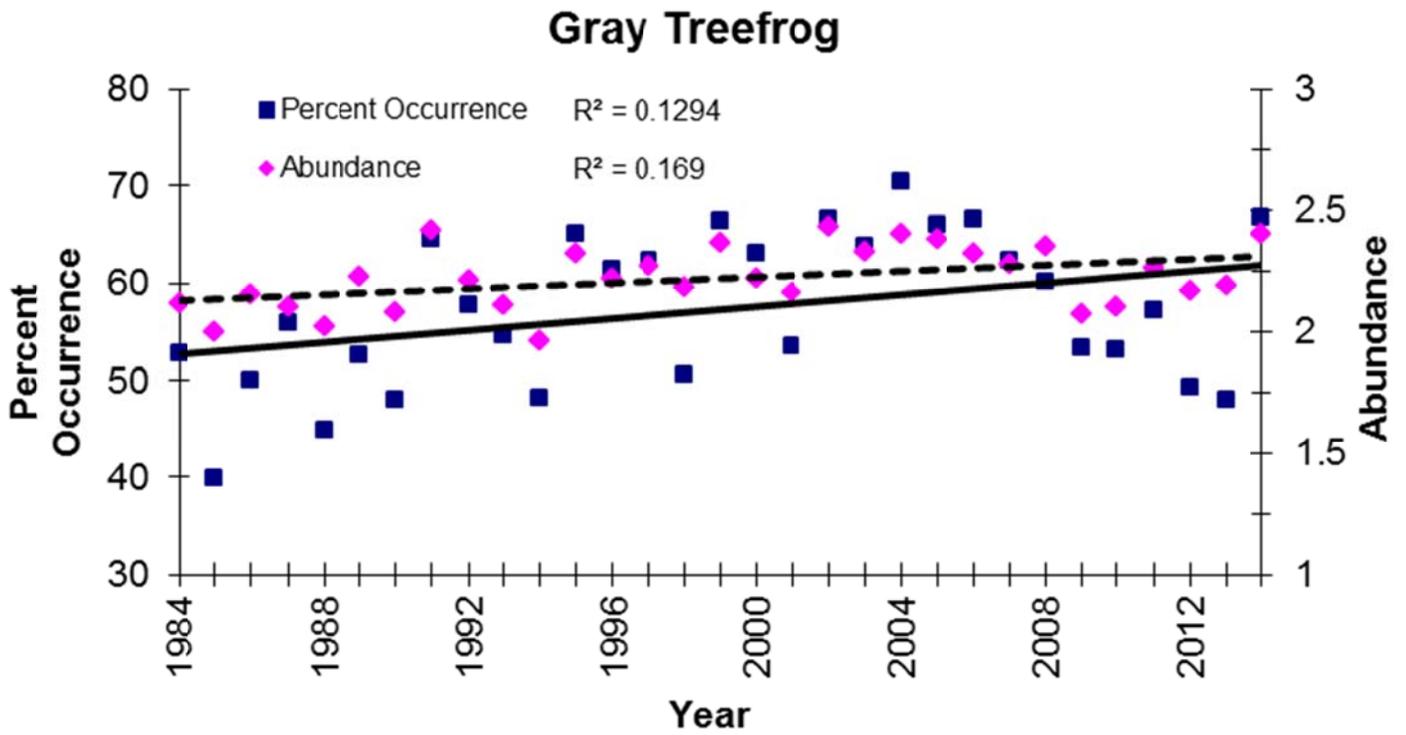


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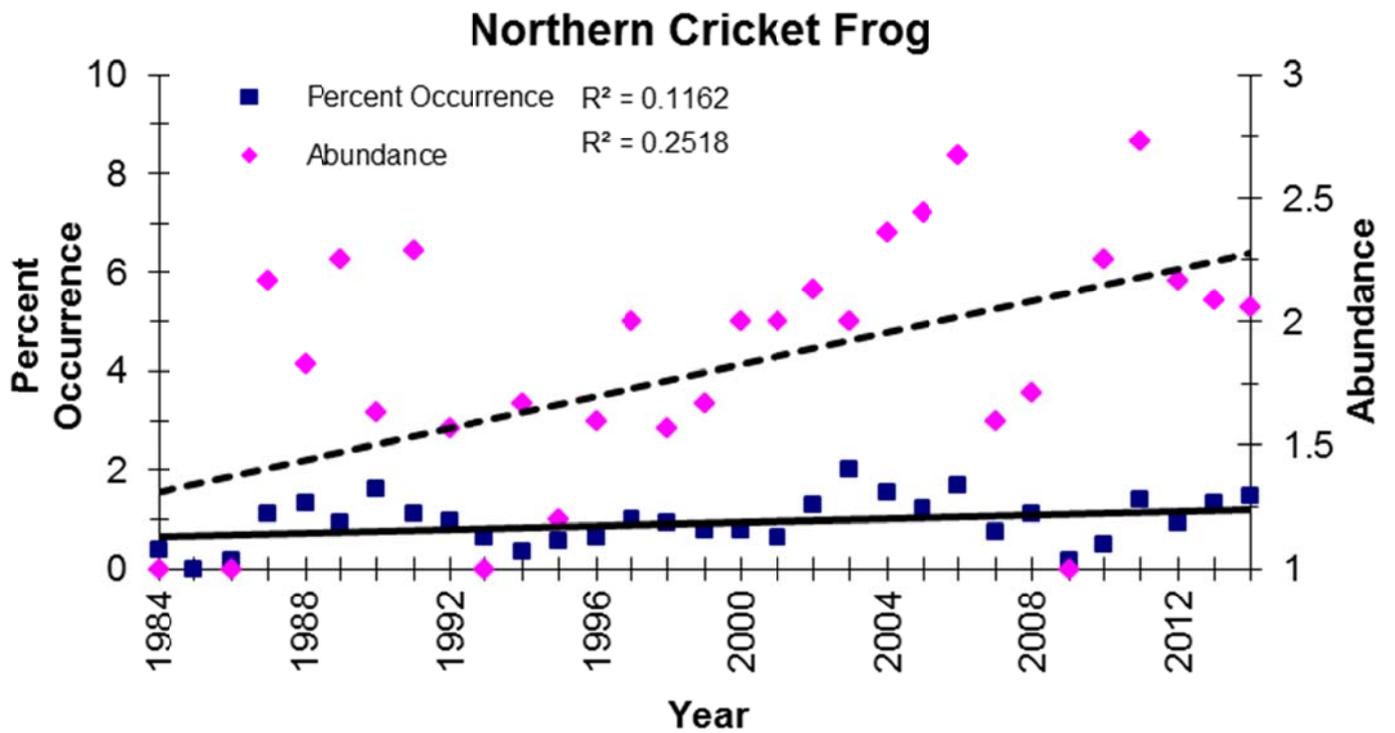
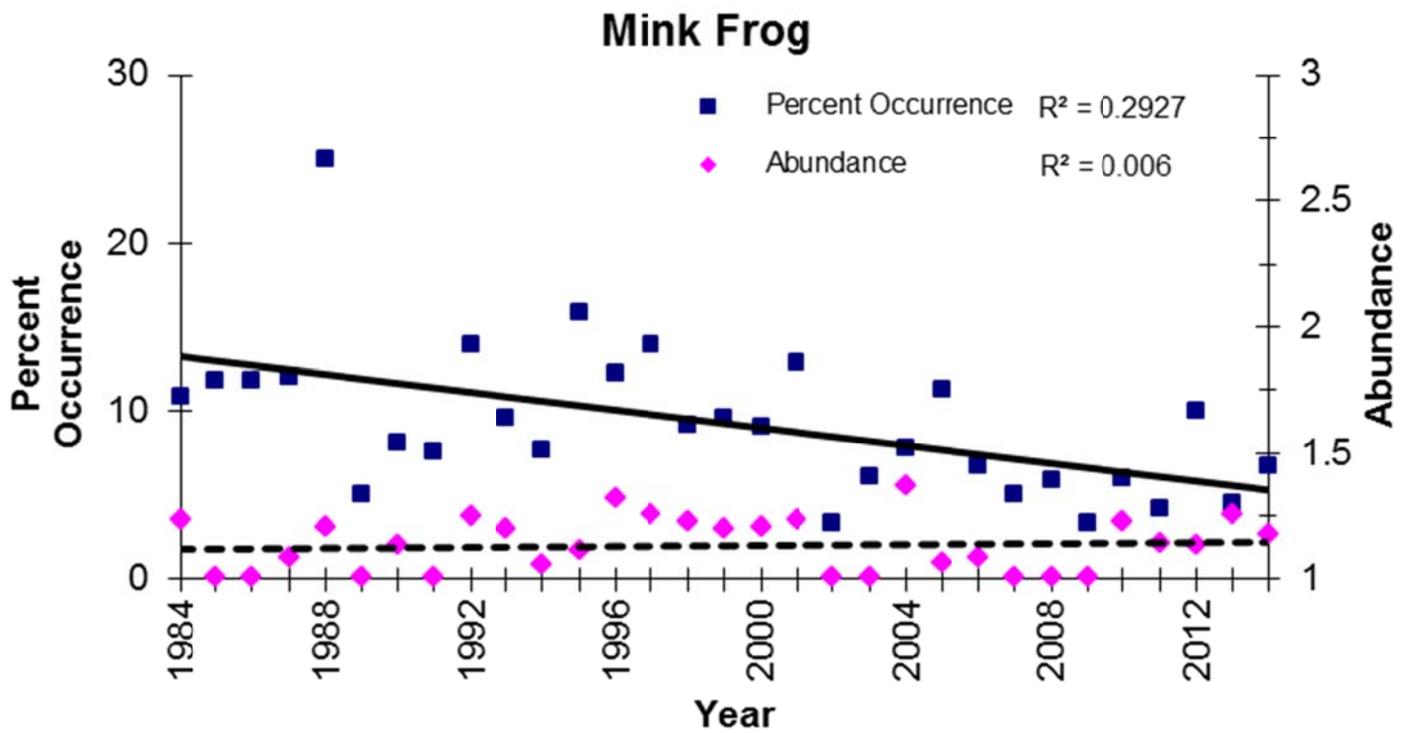
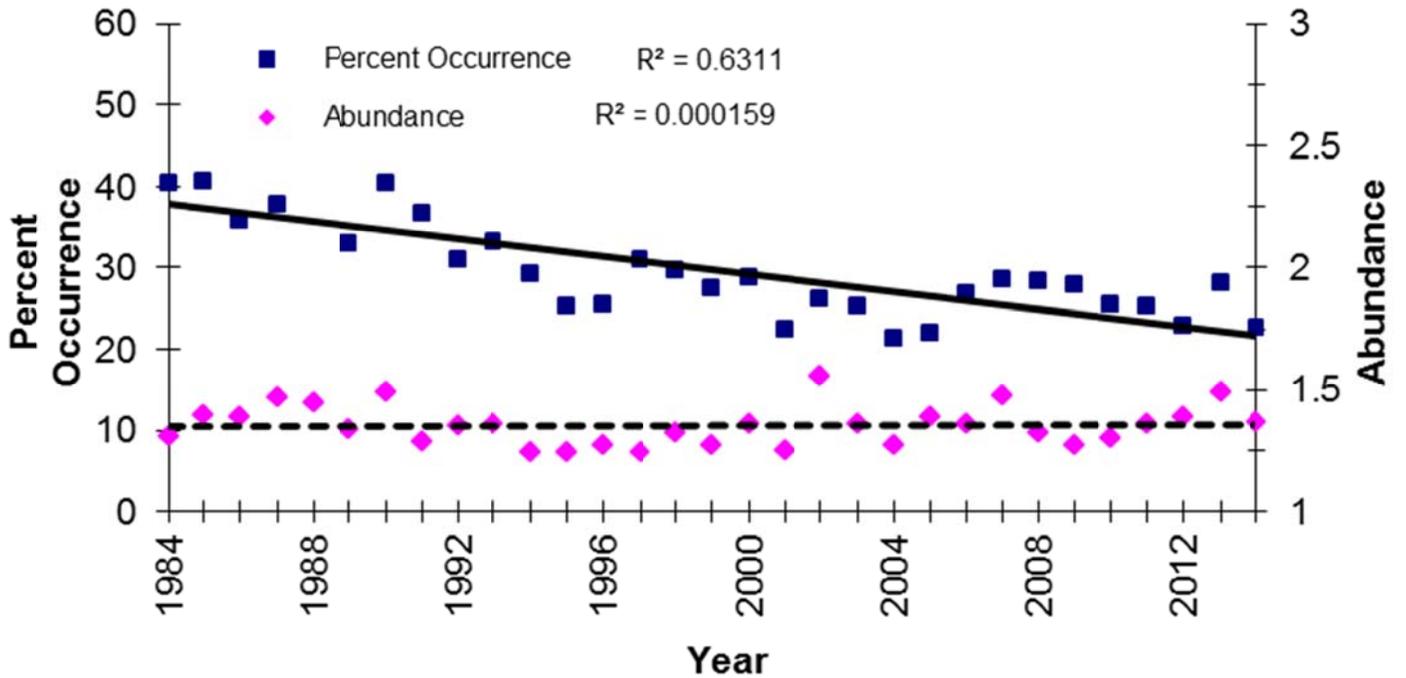


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Northern Leopard Frog



Pickereel Frog

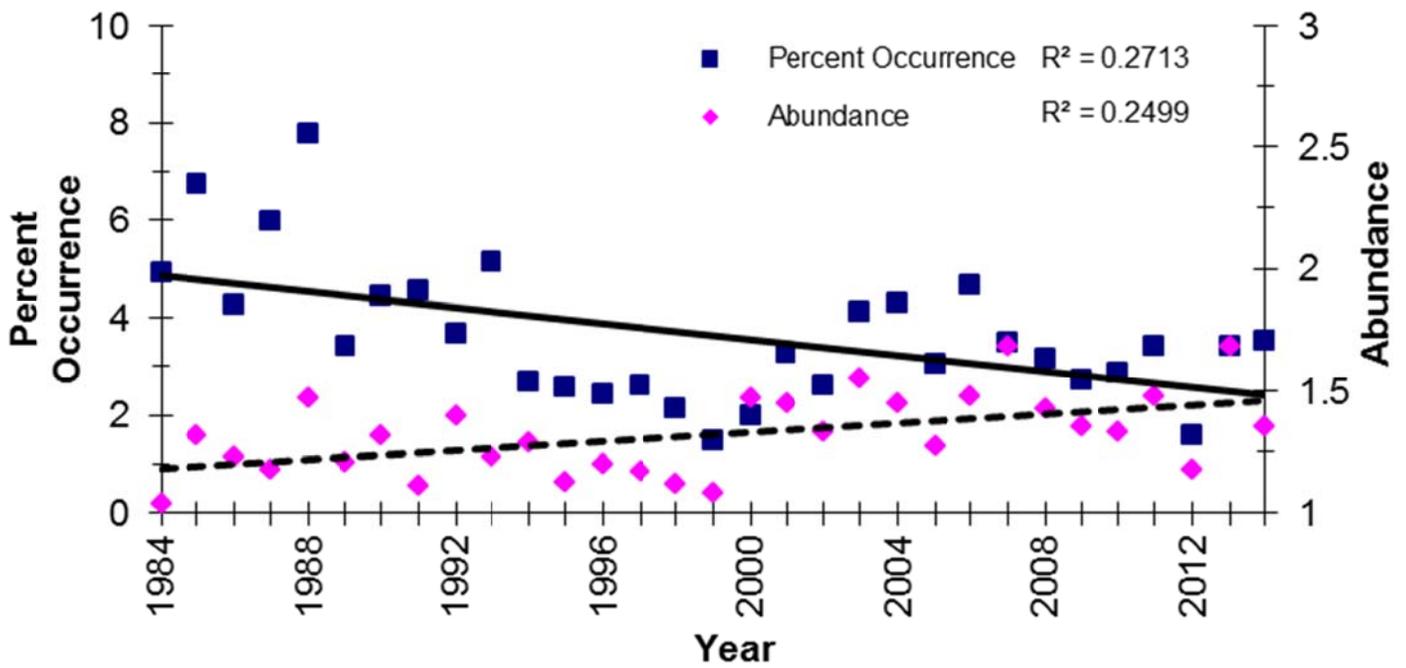


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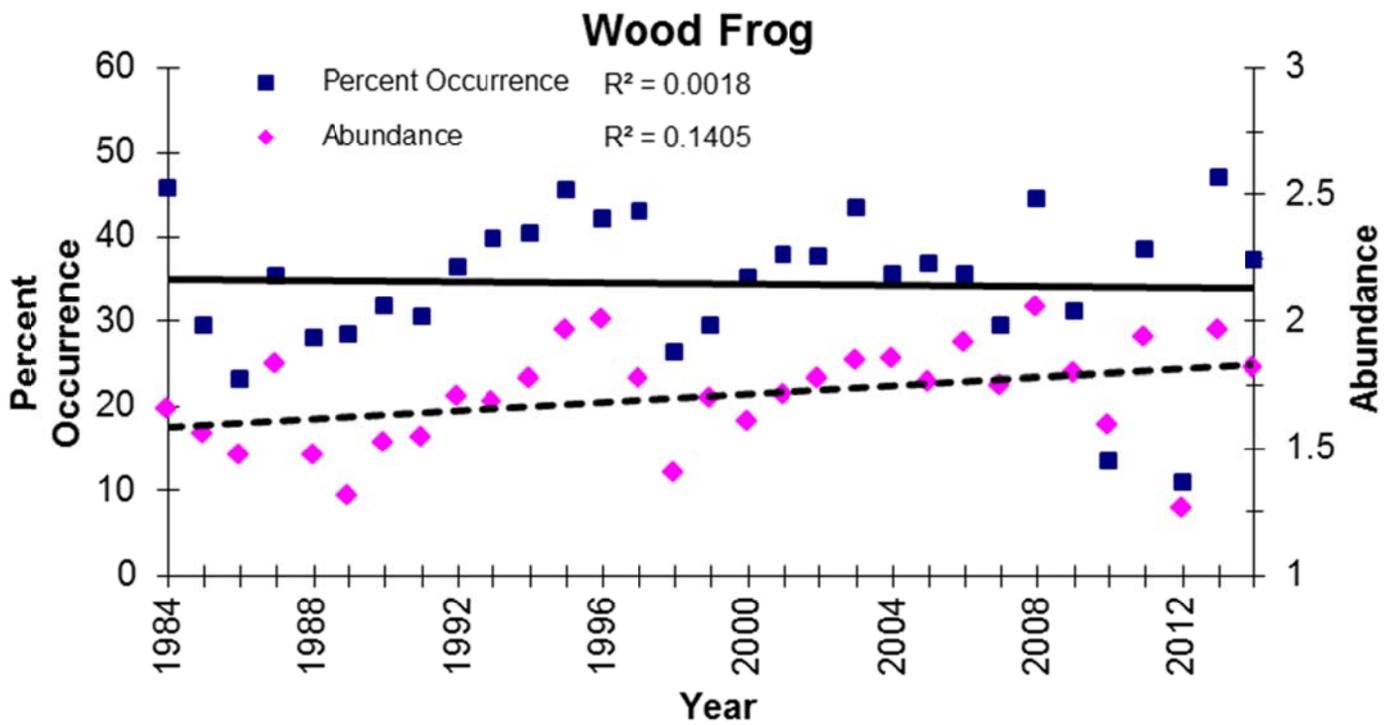
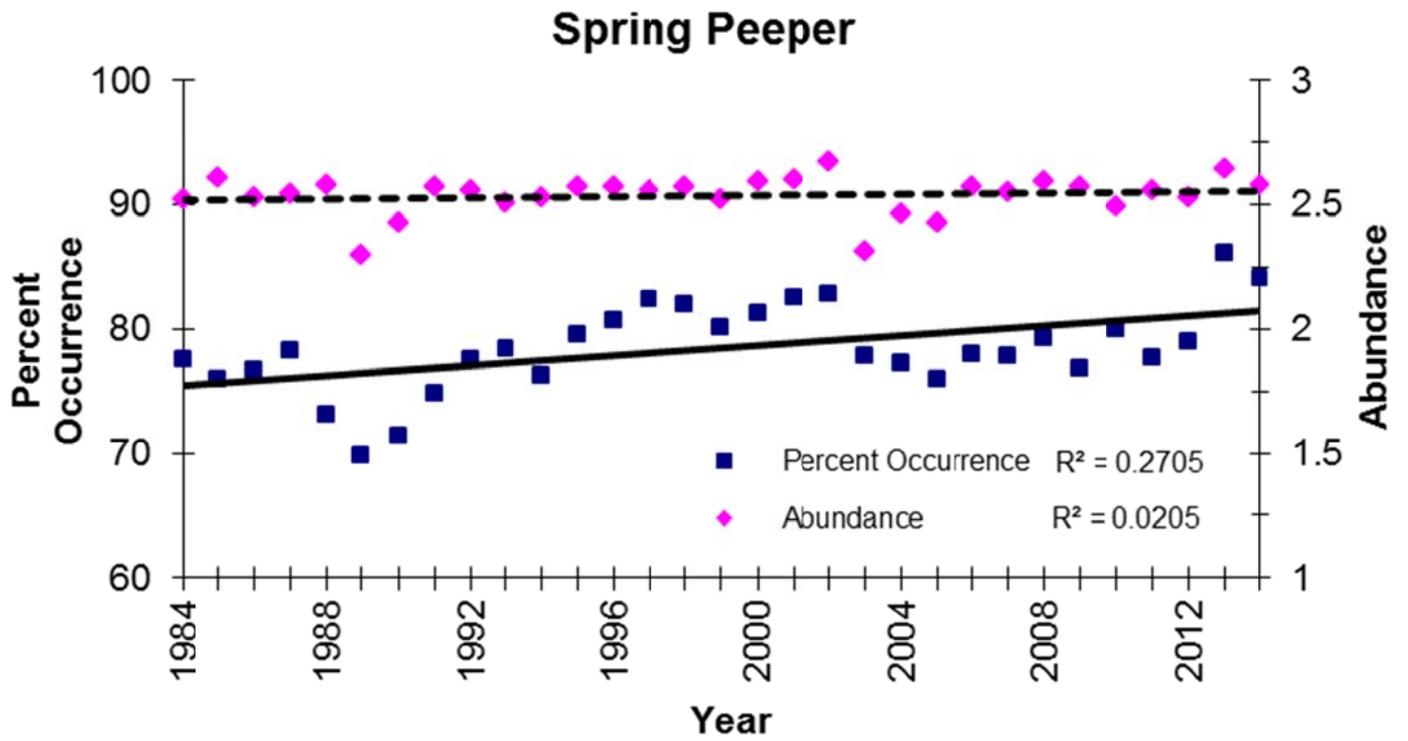


Figure 3. Continued.