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An Improved Method of Preparing Small Color Bands

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ABSTRACT

Commercially available plastic leg bands are too large for California Gnatcatchers and several other small passerine species. We reduced bands of 2.3 mm inside diameter to 1.95 ± 0.05 mm, filed the ends squarely, and sealed them with acetone. This technique is faster and more effective than previous methods and additionally reduces in-field handling time.

INTRODUCTION

The Coastal California Gnatcatcher (*Polioptila californica californica*) is a small, federally threatened, passerine species. Adult California Gnatcatchers usually weigh between 5 and 7 g. Color bands of appropriate size for marking California Gnatcatchers are not commercially available. The smallest available plastic color band size (XF, A. C. Hughes, Ltd.) is too big and without modification may result in leg injury. In order to minimize the occurrence of injury, XF color bands (inside diameter: 2.3 mm) must be re-sized to approximately 1.95 mm ± 0.05 mm inside diameter. Thomas (1983) published a generally accepted method of band preparation suitable for use with California Gnatcatchers. The method is effective but time-consuming. The heating process may change the properties of the plastic, leading to difficulty when sealing the band. In addition, the re-sizing process deforms the band, thus requiring glue or a plastic weld to close bands. Our primary criteria in designing an improved technique were speed of bonding and longevity of bond in the field.

METHODS

To prepare our bands we begin with the oversized plastic band closest in size to our need. Using a nail file or emery board inserted between the butt ends of the band, we remove sufficient plastic material to create a band of appropriate inside diameter and ensure a nearly parallel surface on

which a bonding agent can work. In doing so we bypass the time-consuming cutting, boiling, and freezing process formerly used. A step-by-step series of instructions follows. We now prefer and recommend the use of acetone to seal modified bands. Use of a commercial adhesive is a valid and workable alternative to acetone use.

Step-by-step summary of procedures

1. For California Gnatcatchers, use XF plastic color bands and remove sufficient material to create a band of appropriate inside diameter. This can be done by cutting material with fine trimming scissors or by filing the entire amount to be removed. If all material is to be removed by file, do so in a well-ventilated area. When filing, start at the band cut (i.e., at the split between the butt ends) and file the band using a nail file, emery board or similar device. If cutting material with scissors or other device, remove a lesser amount and file the remainder of the band to produce the appropriate inside diameter and to insure squared ends.
2. To determine if the band has been re-sized correctly, close the band keeping the conformation as round as possible and measure the inside diameter with calipers. For California Gnatcatchers, the measurement should be 1.95 ± 0.05 mm.
3. In the field, after placing a modified band around the tarsus, apply acetone or an appropriate adhesive and hold the butt-end seam closed between two fingers until the ends are held in position or a solid weld has formed.

DISCUSSION

We color banded over 500 individual California Gnatcatchers in our four-year study. Data from field observations conducted throughout the four-year period, our recapture data, and results of other field studies (e.g., Grishaver et al. 1998) suggest this method is generally highly effective. During the course of our study we have documented a total of only three individual California Gnatcatchers suffering leg injury possibly related to our banding procedure, with no discernable difference between the original Thomas method and our modified methods. Changes we have instituted minimally change the effectiveness of the original Thomas method, but importantly reduce both band preparation and in-field handling time. These procedures may be applied during banding studies of other passerines for which bands of standard size must be modified. One of the authors (Haas) uses similar methods of band preparation in studies of endangered Southwestern Willow Flycatchers (*Empidonax traillii extimus*). It is possible that using specially prepared and sealed color bands of appropriately sized inside diameter may limit cases of leg injury (e.g., Sedgwick and Klus 1997) to Willow Flycatchers (*Empidonax traillii* ssp.), other representatives of the genus *Empidonax*, as well as other small passerine species.

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