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NEST RELOCATION USING PVC "SPOTTERS"

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Abstract.—A simple device to aid in the rapid relocation of nests, composed of PVC pipe and tie wire, is described. A 16–18-cm length of pipe can be attached to a supporting structure with a section of wire and adjusted to point at the target nest by its discoverer. Used like a lensless spotting scope, the "spotter" allows other observers to quickly and reliably relocate the nest with minimal written or verbal description.

RELOCALIZACIÓN DE NIDOS UTILIZANDO LOCALIZADORES DE PVC

Sinopsis.—Se describe un aparato simple, compuesto de una pequeña porción de un tubo de PVC y un alambre, de utilidad para relocalizar nidos. Un pedazo de tubo plástico de 16–18 pulgadas de longitud puede ser amarrado a cualquier estructura de soporte y dirigido hacia la localización de un nido. Utilizado como un telescopio sin lente, el aparato permite que un investigador pueda localizar un nido con facilidad con instrucciones mínimas.

Researchers studying the reproductive ecology or nesting behavior of birds typically spend a large percentage of their field time searching for and revisiting nests. After a nest is initially located, some method of marking or recording its position for subsequent visitation is usually required. For some nest locations, however, written or schematic descriptions may not allow for the rapid relocation of the nest, particularly by members of the research team who have never before seen it. Nests positioned in high, thick canopies or those which cannot be closely approached because of limited accessibility are just two examples. To limit disturbance in the nest area and maximize time available for nest searching and observation, researchers should attempt to minimize relocation time.

During a study of the reproductive ecology of two endangered Hawaiian forest birds, the Akohekohe (*Palmeria dolei*) and Maui Parrotbill (*Pseudonestor xanthrophrys*), I developed a method of nest relocation that was simple and reliable. By cutting a short length of one-quarter inch PVC pipe (22-mm outside diameter, 15-mm inside diameter), I fashioned the equivalent of a lensless spotting scope. Using a piece of 16-gauge (approx. 1.5-mm diameter) tie wire, this "spotter" was affixed to a nearby stem, branch, or man-made support, and adjusted to point to the nest of interest.

I found this system to have numerous benefits. (1) Spotters could be placed in, and therefore mark, the location offering the best view of the nest. (2) There was no need to mark or approach the nest tree itself, thus reducing the chance of inadvertently supplying location cues to potential nest predators. (3) A detailed description to distinguish the nest tree and nest branch from others in the same area was not needed, eliminating possible errors incurred while reading compass bearings, estimating dis-

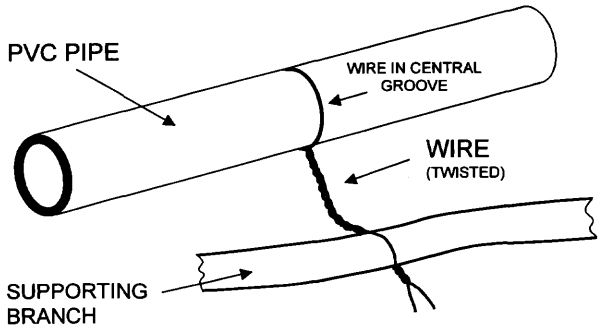

FIGURE 1. A PVC nest spotter supported by branch.

tances, and interpreting other, more subjective, qualifiers. (4) The spotters were relatively easy to relocate—simple directions and, if needed, a vinyl flagging path could be produced quickly and at some distance from the nest tree, minimizing disturbance. (5) The materials were inexpensive (approx. US$0.18/spotter) and readily available at most hardware or home supply retailers. (6) The spotters and wire were lightweight, allowing a nest searcher to carry several days' supply. (7) They could be set up at the nest site without tools, typically in less than 30 s. (8) The PVC pipe was not affected by weather and could be reused many times.

To prepare a spotter for use I cut the PVC pipe, usually purchased in 8- or 10-foot (approx. 2.4- or 3-m) lengths, down to lengths of 16–18 cm using a fine-tooth saw blade (e.g., hacksaw). With the same saw blade, I cut a central groove (approx. 1.5-mm wide and 1-mm deep) around the outer circumference of each spotter, roughly halfway between the ends, to keep the PVC from slipping out of the supporting wire. Nest searchers cut sections of wire in advance, with lengths determined by the type of vegetation or material typically used for support. A 4-cm diameter branch, for example, required a wire approximately 45-cm long, but longer lengths were also carried.

To set up the spotter at the nest site, researchers placed the center of the wire in the pipe's central grove, closed the wire ends around the pipe, and twisted the wire around itself eight to ten times so that pipe was held firmly within the wire loop. They wrapped the remaining wire ends around the supporting structure, closed and twisted several more times, forming a second loop. Using the pipe as a handle, they continued to twist the wire until the pipe and supporting structure were held securely in their respective loops (Fig. 1). To help eliminate gaps in the wire, the pipe was pulled firmly away from the supporting structure before each twist. When using living branches or stems, care was taken not to constrict or damage cambium or conductive tissues below the outer bark.

Once secured, the spotter was aligned to point directly at the nest area, with the nest as centered within the field of view as possible. For greater accuracy, nylon thread crosshairs were affixed to both ends of the spotter

using epoxy resin adhesive. Nest identification information was written with indelible ink on vinyl flagging used to help mark the location of the spotter.

Spotters were used at over 120 nests in a study area where six native species constructed cryptic nests in high, dense canopy foliage. Each nest was visited by up to six different observers, with relocation times typically under 5 s. With one exception, only improperly secured spotters failed to remain pointed at the target nest. At one nest site, an observer unknowingly caused a misalignment of the spotter as he exited an observation blind. A policy requiring researchers to check the position of the spotter before leaving a nest site prevented reoccurrence. Although used in a high elevation rain forest environment, spotter alignment was not affected by weather. The force of wind and rain, however, was reduced by a relatively closed canopy and dense understory.

In some study areas, large animals such as deer or bear, some tree climbing species, and falling vegetation (e.g., dead branches, fruit) would be capable of changing spotter alignment. In such habitats, a detailed written description of each nest's position should always be provided as well. For environments subject to high winds or heavy rainfall, the use of heavier gauge wire may reduce the chance of misalignment.

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