

***Achatinella* spp. Snail Relocation in Conjunction with Intensive Weed Management Protocol for O`ahu Army Natural Resource Program**

November 28, 2016

O`ahu tree snails (*Achatinella* species) protected by the Endangered Species Act (ESA) may need to be relocated to avoid incidental take during intensive weed management that includes the use of chipping equipment. When disturbance of snail habitat cannot be avoided and snails need to be relocated, the following steps will be performed:

1. A thorough survey of the weed management area containing the snails must be conducted during the night on 3 separate occasions using binoculars no more than 1 month prior to the start of cutting and chipping.
2. During each of these three nighttime survey periods, trees or other vegetation containing snails will be flagged, and the number of individual snails and their size (or age class) and the vegetation they are on will be recorded.
3. Minimum survey time at night will be 6 person hours per quarter hectare (50 meter block). Staff will conduct sweeps entailing 4-8 staff walking in a phalanx formation back and forth to ensure 100% visual survey coverage of the sector. Staff will communicate constantly to ensure that gaps are not left between surveyors.
 - a. If zero snails are found in a sector for three consecutive night surveys, area can be cut and chipped.
 - b. If at any point a snail(s) is found in the sector, an area is delineated five meters out from the snail on all sides. All staff will be briefed about special care required when working in this area.
 - i. For dense stands (approximately 50 stems per meter squared) of small diameter (approximately 1-3 inches at base) trees, removal can be conducted by using pruning saws to cut each individual stem at approximately 5 feet height above ground. Each cut stem will be lowered carefully to minimize disturbance of any potential snail attached to the tree. The inspector will observe the stem as it is lowered to monitor for any snails that could be dislodged while lowering, and each leaf surface will be visually inspected. Any snails found during this process are translocated following approved U.S. Fish and Wildlife Service translocation protocols. Then the cut stem may be chipped.
 - ii. For trees with diameter greater than approximately 3 inches, the canopy will be inspected using a climbing ladder (Werner 15 feet telescoping Multi Ladder) if possible or tree climbing equipment. Use of these survey tools will be conducted carefully to ensure minimal disturbance

to any potential snails and only where surveys can be done safely. Leaf surfaces will be individually inspected within the limits of safety. This survey will be conducted once at night before declaring it safe to cut and chip.

As unusual circumstances arise, Annie Marshall, Joy Browning, or O`ahu Island Team Lead shall be notified within 24 hours to discuss modifications relative to the authorized activities in conjunction with this protocol.

***Achatinella* spp. Snail Relocation in Conjunction with Intensive Weed Management Protocol**

August 30, 2016

Oahu tree snails (*Achatinella* species) protected by the Endangered Species Act (ESA) may need to be relocated to avoid incidental take during intensive weed management that includes the use of chipping equipment. When disturbance of snail habitat cannot be avoided and snails need to be relocated, the following steps will be performed:

1. A thorough survey of the weed management area containing the snails must be conducted during the night on 3 separate occasions using binoculars (Figure 1).
2. During each of these three nighttime survey periods, trees or other vegetation containing snails will be flagged, and the number of individual snails and their size (or age class) and the vegetation they are on will be recorded.
3. Minimum survey time at night will be 6 person hours per quarter hectare (50 meter block). Staff will conduct sweeps entailing 4-8 staff walking in a phalanx formation back and forth to ensure 100% visual survey coverage of the sector. Staff communicate constantly to ensure that gaps are not left between surveyors.
 - a. If zero snails are found in a sector for three consecutive night surveys, area can be cut and chipped.
 - b. If at any point a snail(s) is found in the sector, an area is delineated five meters out from the snail on all sides. All staff are briefed about special care required when working in this area.
 - i. For dense stands (~50 stems per meter squared) of small diameter (~1-3" at base) trees, removal can be conducted by using pruning saws to cut each individual stem at ~5' height above ground. Each cut stem will be lowered carefully to minimize disturbance of any potential snail attached to the tree. The inspector will observe the stem as it is lowered to monitor for any snails that could be dislodged while lowering, and each leaf surface will be visually inspected. Any snails found during this process are translocated following approved USFWS protocols. Then the cut stem may be chipped.
 - ii. For trees with diameter >~3", the canopy will be inspected using a climbing ladder (Werner 15' telescoping Multi Ladder) if possible or tree climbing equipment. Use of these survey tools will be conducted carefully to ensure minimal disturbance to any potential snails and only where surveys can be done safely. Leaf surfaces will be individually inspected within the limits of safety. This survey will be conducted once at night before declaring it safe to cut and chip.

Map removed to protect rare resources

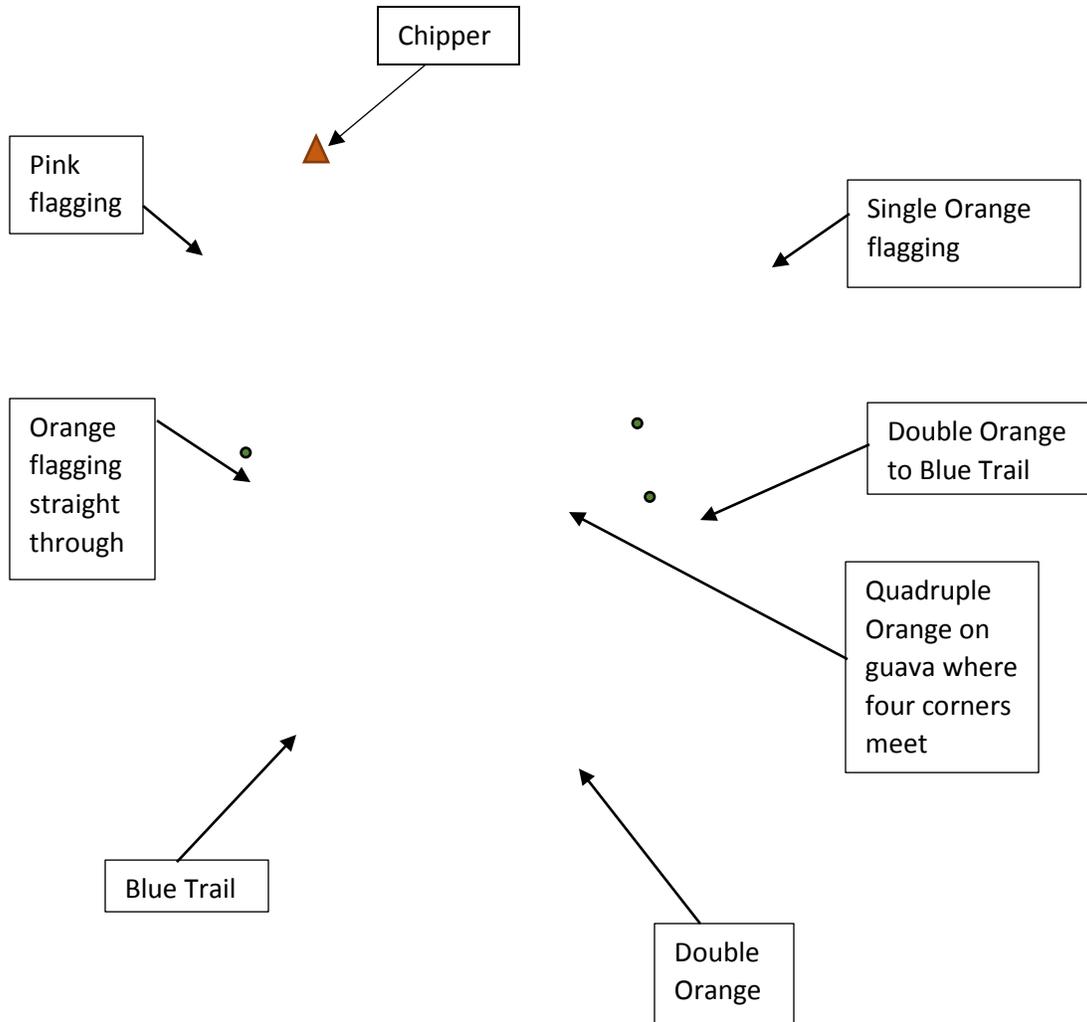


Figure 1. Palikea North Search Sectors