

COQUI FROG WORKING GROUP

Minutes to meeting on July 15, 2002, 1:00- 4:30 pm
DLNR, Division of Forestry and Wildlife, Hilo HI

1. ATTENDANCE (see attachment)

- Coordinator: Arnold H. Hara
- Facilitator: F. Benevides, Jr.
- Recorder: R. Niino-DuPonte

2. INFORMATION SHARING [Group]

- Possible use of citric acid as a pesticide. *G.Sahara passed out a list of substances, including citric acid, exempted from Federal Insecticide Fungicide and Rodenticide Act (FIFRA) regulation.*
- Coqui frog article in Star Bulletin. *M. Wilkinson reminded group of coqui frog newspaper article (July 7, 2002).*
- Coqui frog vocalization versus elevation. *K. Tavares noted that coqui frogs are vocalizing only about once per 25 minutes at high elevations such as at the Volcanoes National Park; she'd also updated the group on her educational presentation at Cooper Center, Volcano Village on July 4, 2002 (and sound clip).*
- Caffeine certification data by deadline 09/27 /02. *T. Ohashi announced they are much closer to the the task of providing EPA with required certification data on the effects of testing caffeine and have filed an application to continue their work after the registration expires on 09/27/02.*
- 12 hour coqui frog sound levels at Puainako control site. *F. Benevides presented a graph of sound level readings taken at the Puainako control site from 6:00 pm 07/06/02 to 6:00 a.m. 07/07/02 (1 handout).*

3. PRESENTATION [H. Ako]: Use of Pyrrolic Compounds and Caffeine to Control the Coqui Frog (H. Ako and R. Hutchison, UH CTAHR).

- Evaluated pyrethrin (Pyronyl Crop Spray) and caffeine as possible toxicants (at N. Matayoshi's request)
 - Most effective treatment appeared to be a combination of pyrethrin (0.02%) and caffeine extract (1.0%) than either substance alone: After one application, 5 out of 5 frogs died within 5-10 min.
- Determined whether effective levels of caffeine can be extracted from culled Kona coffee beans in order to reduce the cost of caffeine
 - A high of 1.4% caffeine was extracted using a Soxhlet apparatus
- Limiting factor to continuing/replicating this research is the need for more frogs to be transported to their lab.

4. PRESENTATION [E. Killgore]: Potential for Biological Control of the Coqui Frog (HI DOA) (3 handouts)

- What are the possible biological agents?
 - Not snakes, lizards or birds because they wouldn't feed exclusively on the coqui frog
 - Not endoparasites (worms) because their life cycles require an alternate host (usually a mammal) and also because they are not that lethal (unless the frog's health is already compromised)
 - Not viruses because they have not been studied well enough, too many questions unanswered (mode of transmission, etc.) and they are difficult to work with

- Not bacteria because they usually cause secondary infections only
- Fungi, specifically Chytrid fungus, appear to be the most promising. It also sets in as a secondary infection but is lethal.
 - o It has caused mass frog deaths in various states, countries in wild populations and in many more locations in captive populations (e.g., zoos - probably including Honolulu Zoo).
 - o Chytrid fungus releases zoospores that require water, 17-23° C temperature, and may also produce a toxin. It kills frogs by feeding off' of the keratin layer (or chitin) causing hyperplasia, disrupting osmotic regulation and transpiration functions of the skin
- Need to apply for a permit to import chytrid, identify a source from which to acquire the fungus and/or frogs that have succumbed to it

5. DISPLAY [E. Brodie]: Hot Water System Used to Treat Forest Seedlings (DLNR)

6. NEW ACTION ITEMS [Group]: None.

7. OLD ACTION ITEMS:

- Contact a local frog grower to request a short presentation (about 15 min.) at a future meeting to cover typical conditions that cause frog mortality [**G. Sahara**] **Status: OPEN**

8. SUBMISSIONS TO AGENDA [Group]

Notes: Numbers in () indicate number of participants interested in discussing item. Underlined items indicate closure, resolution, and/or discussion.

- How can we educate the Public regarding coqui frog control? (21)
- Is eradication of coqui frogs in Hawaii possible? (13)
- If it is possible, how can we eradicate coqui from in Hawaii? (13)
- How can hydrated lime be legally used to eradicate coqui frogs? (8)
- Brainstorm quarantine issues. (11)
- How do/can we enforce individuals who knowingly spread coqui frogs? (3)
- Who are our stakeholders? (5)
- How can we prepare for public controversy? (10)
- Develop educational programs for industry and homeowners. (11)
- What is the impact of coqui frog on Hawaii's ecology"? (12)
- What are alternative treatment techniques for potted plants moving between islands and landscape plants? (11)
- Seek humane (i.e. quick kill) methods for controlling coqui frogs. (7)
- Identify all potential funding sources. (1)

A. How do we educate the public regarding coqui frog control?

- o Need full-time position and funding for educating and responding to public questions regarding what can be done to control coqui frogs.
- o Need to reach adults, schools, and children, outreach etc. regarding threat.
- o Need volunteers to help with education (e.g. upcoming county fair).
- o Radio broadcast to call a phone number (i.e. hotline) for information (e.g. recorded or one-on-one response).
- o Flyers already available from HDOA that have been distributed to businesses, schools etc.
- o Give some practical help that people can use, especially in residential areas.

- Definitive ID of a coqui frog. Visit website for sample of vocalization.
- Currently, no legal pesticide can be used or recommended.

Resolution/Action: Should be readdressed at a later time when more is learned about what can effectively control coqui frogs. Standing request for volunteering, recruiting volunteers, consideration for outreach funding when applying for grants. **None. Closed.**

B. Is eradication of coqui frogs possible in Hawaii?

- The word “eradicate” has a stronger connotation than “control”.
- If we use the word “eradicate”, the public will have high expectations; “control” or “abate” instead?
- Eradication is possible, but more likely on small isolated populations such as on Maui and Oahu and unlikely on the Big Island.
- Perhaps eradication on Big Island only possible if biocontrol methods used because of experience with attempts to control apple snail (H. Ako). Achieved 98% control with changes to agricultural practices, use of ducks, etc., but 2 years later, apple snail population rose again. Perhaps coqui frog control will be as cyclic.
- Is a certain % of the public not doing anything about it because they choose to accept the frog? We need public support. A half-hearted attempt at eradication/control will not work.

Resolution/Action: Vision is defined as something that's never attainable, but needed for direction and guidance. Goal is something that is attainable if enough resources are placed on problem. **CFWG VISION: Eradicate coqui frogs in Hawaii. CFWG GOAL: Control and/or abate cogui frog in Hawaii. Closed.**

C. If it is possible, how can we eradicate coqui frogs in Hawaii? The group brainstormed the following ideas, then classified each according to what is primarily needed to accomplish them:

L = legal, R = research, F = funding, A = action.

- L Use of pyrrolic and caffeine substances
- L Use of caffeine derivatives
- L Increased legislation and enforcement of frog movement from infested areas
- L Register hydrated lime as a pesticide

- R Research methods of mating disruption
- R Use of biocontrol methods (specifically, chytrid fungus)
- R Research and develop improved quarantine treatments (e.g., hot water treatment)
- R Target eggs for control treatments
- R Test citric acid as a pesticide
- R Develop attractants, bait-and-trap systems
- R Develop call playback methods to thwart male mating vocalization efforts, use sound to attract females (trapping)
- R Determine efficacy of EP A non-restricted products
- R Investigate safer methods of coqui frog control
- R Evaluate pesticides specific to cold-blooded vertebrates
- R Develop frog recipes
- R Determine how other agencies are coping with coqui frog problem on the mainland and in foreign countries.
- R Investigate effects of habitat manipulation (removal of vegetation) on coqui frog populations

- A Wait until a dry season when coqui frog are more vulnerable (i.e., retreat from canopy to ground), then treat with suitable pesticide or substance
- A Use hand capture, educate public on methods
- A Identity sources of coqui frog introduction and spread
- A Identity pathways that frogs can be spread- movement of cut flowers or refuse (tree cuttings), refugia (PVC pipes, nursery equipment or vehicles stored near an infested area) - develop a list of “Don’t...’s for public, growers
- A Develop a website to post all coqui frog info from CFWG activities and links to other sites (e.g., sound clips for definitive coqui frog ID)
- A Use prisoners to hand capture coqui frogs
- A Develop strategy that incorporates these ideas for coqui frog control
- A Increase and implement rigorous inspections at nurseries and make them accountable for coqui frog control (including inter-island movement)
- A/R Develop information sheets for public on how to successfully kill coqui frogs
- A/R Intensive study of coqui frog biology , including any natural enemies wherever coqui frogs exist, making it a national and international effort -bring in consultants, researchers
- A/R Classify and map locations (towns, properties) according to potential for coqui frog habitation
- A/F Expand coqui frog educational campaign
- A/F Need more funding for education, including a serious media campaign
- A/F/L Control burn followed by suitable reforestation in appropriate environments

- F Offer reporting incentives
- F Offer bounties for captured frogs
- F Form an interagency eradication team

Resolution/Action: Several brainstormed items above need further discussion and resolution.
Open.

9. MEETING EVALUATION [Group]

- **Pro Issues:** Excellent presentations and display
- **Suggested Changes:**
 - Encourage more CFWG members to present current work or interest (max. 15 min.)
 - Establish a timeline to determine what we hope to accomplish (in 1 month-3 months-6 months-1 year) and what roles we each can take on to fulfill those goals.
 - Invite stakeholders (e.g. nursery and landscape representatives, landowners, conservation groups) to join in the discussions at meetings.
 - Continue to revisit CFWG's vision/mission/objectives to stay focused
 - Need to collect \$ to provide refreshments

10. NEXT MEETING

- Monday, 08/12/02
- 1:00 P.M. to 4:30 P.M.
- UH Manoa CES, Komohana Agricultural Complex, 875 Komohana Street, Conference Room A (upstairs), Hilo, HI