

August 2007

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Martin, Christy, "PROMOTING AWARENESS, KNOWLEDGE AND GOOD INTENTIONS" (2007). *Managing Vertebrate Invasive Species*. 28.

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## PROMOTING AWARENESS, KNOWLEDGE AND GOOD INTENTIONS

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**Abstract:** Two independent studies in the 1990s found that Hawaii had the nation's worst alien pest problem due to gaps in prevention, detection and control programs, which could be addressed through increased communication, cooperation, and public outreach. The Coordinating Group on Alien Pest Species (CGAPS), a government/non-government partnership, formed in 1995 to address these gaps and work on public awareness. Using snakes as an example, a 1996 Hawaii statewide public awareness survey found that 66% of people "had heard of brown treesnakes." CGAPS ran the "Silent Invasion" campaign in 1997, with "shock footage" television commercials and specials about brown treesnakes on Guam. By 2004, awareness of brown treesnakes had risen to 83%, and 91% of Hawaiian residents were "very likely" to report snake sightings, yet less than 5% knew about the Pest Hotline, nobody could recite it, and some balked at having to call an Oahu number to report a snake. CGAPS launched phase two of the campaign in 2006, with television and print media and a new toll-free hotline number. Follow-up surveys confirmed rising awareness about brown treesnakes, but unacceptably low awareness and use of the Pest Hotline. CGAPS is experimenting with ways to promote knowledge and good intentions to different audiences in Hawaii.

**Key Words:** *Boiga irregularis*, brown treesnake, invasive species, media campaign, outreach, public awareness, snakes.

Managing Vertebrate Invasive Species: Proceedings of an International Symposium (G. W. Witmer, W.C. Pitt, K.A. Fagerstone, Eds). USDA/APHIS/WS, National Wildlife Research Center, Fort Collins, CO. 2007.

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## INTRODUCTION

For millions of years, the natural isolation of the Hawaiian Islands has been an effective barrier for preventing the arrival and colonization of many species, including all land reptiles, amphibians, and all but one land mammal, the Hawaiian hoary bat (*Lasiurus cinereus semotus*). The first non-native species arrived with Polynesian voyagers in about 400 A.D. Following Western contact by Captain Cook in 1778, an influx of alien species began that has continued through today (Stone 1985).

The first laws and programs aimed at protecting Hawaii from invasive species were set in place in the late 1800's, but many times these efforts were designed to address individual pests, or protect the interests of big agriculture industries, including sugar and pineapple. The result was a patchwork system of laws, agency authorities and mandates. In the 1990's, two studies reported that Hawaii had the worst alien pest problem in the nation due to large gaps in Hawaii's invasive species programs and laws, a lack of inter- and intra-agency communication, and cooperation, and concern (TNC/NRDC 1992, U.S. OTA 1993). The reports concluded that these gaps could be addressed through increased inter-and intra-agency

communication, cooperation, and public outreach. In response to this, the Coordinating Group on Alien Pest Species (CGAPS), a voluntary government/non-government partnership, formed in 1995 to address these gaps and has made some headway on public awareness.

The overall goal of CGAPS outreach efforts is to raise awareness in Hawaii residents about invasive species in order to foster a sense of concern and result in supportive actions. Since 1996, CGAPS has conducted two television media campaigns, titled the Silent Invasion, and has taken advantage of outreach opportunities via the news media. One measure of outreach efficacy has been to conduct periodic telephone surveys of a representative number of residents statewide, to gain a sense of public awareness, concern, and support.

One outreach topic CGAPS focuses on is brown treesnakes (*Boiga irregularis*), and the threat that these and other snakes pose to Hawaii. The key outreach messages include: (1) snakes are bad for Hawaii, (2) snakes are illegal to import or own, (3) if you see a snake, report it to the Hawaii Department of Agriculture (HDOA) pest hotline immediately to report it, and (4) people with illegal

pet snakes should take advantage of the amnesty program by calling the pest hotline to surrender snakes without fear of prosecution. This paper will look at CGAPS outreach efforts and public awareness of brown treesnakes and other snakes between 1996 and 2007.

## **METHODS AND RESULTS**

In October 1996, CGAPS contracted with a company to conduct the first baseline public awareness survey specifically on invasive species. Four hundred and seven registered voters were interviewed by telephone in a random sample, balanced according to all known demographic factors, for a margin of error of +/- 4.8% at a 95% confidence level. From these results, CGAPS learned that just 29% of people polled had heard of the concept of "alien pest species," yet 66% of people "had heard of brown treesnakes," (Kitchens Group 1996). Participants were not asked what number they would call if they saw a snake.

CGAPS ran the first Silent Invasion media campaign in 1997-98, which featured "shock footage" television public service announcements (PSAs), short topic specials and a 26-page booklet about brown treesnakes and other alien pest species. Although there was no follow-up survey after the campaign, public outreach continued via opportunistic news media stories through 2003, when outreach messages and needs were reevaluated in preparation for the second Silent Invasion campaign.

CGAPS contracted with a company to conduct three focus groups in October and November 2003, to evaluate and review campaign messages. Results showed that invasive species were not a "top of mind" concern, yet participants were aware of the brown treesnake and talked about the damage it caused on Guam. When it came to talking about reporting snakes, many participants said they would report them, yet some of the same participants relayed anecdotes about people they knew who had smuggled pet snakes into Hawaii, and yet they did not report them to authorities (Ward Research 2003). From these results, CGAPS concluded that it was important to continue to link snake issues with the brown treesnake story, and that previous messages regarding snakes were on target.

Focus groups also revealed some major issues with the pest hotline. Participants were not aware that the state had a pest hotline number, despite it having been in operation since 1992. Most participants could not identify what agency was

responsible for the hotline. When participants were told the hotline was an Oahu number, neighbor island residents said they would be reluctant to call because they would incur long distance charges. Neighbor island residents also preferred to speak to someone on their island that might be familiar with the sighting locations (Ward Research 2003).

To address these hotline issues, a new statewide pest hotline number was set up in Hawaii to allow callers to dial the seven-digit number, 643-PEST, direct and toll free from any island. The new hotline number uses a computer program to automatically route calls to the nearest Hawaii Department of Agriculture (HDOA) office during work hours and to the HDOA office at the Honolulu International Airport after hours and on weekends, for 20 hours per day, 7-day coverage.

Following the establishment of a new toll-free hotline, a new public awareness baseline survey was conducted in November 2004 (Ward Research), prior to the second Silent Invasion media campaign, between January 2006 and May 2007. Two benchmark surveys were conducted during the campaign, in June 2006 (Ward Research), and February 2007 (Qmark Research and Polling), to gauge changes in awareness, detect problem areas, and allow for changes in the messages and delivery methods. These surveys again followed the same methodology, but with a slightly higher number of people surveyed (n=501) to maintain a sample size with a maximum sampling error of +/-4.4% at the 95% confidence level.

For the first phase of the new Silent Invasion campaign, CGAPS produced five, 30-second public service announcements (PSAs) which aired on all major television network affiliate stations from January through July, 2006. The snake PSA ran more than 200 times during high-viewership programs, such as the evening news, CSI Miami, Lost, Dancing with the Stars, and on local programs, such as Outside Hawaii, a show that appeals to hunters and hikers.

After airing the PSA for five months, the June 2006 benchmark survey measured an increase in the number of people that said that invasive species were "a very serious problem," from 36% prior to the campaign to 43% in 2006. In addition, public awareness of brown treesnakes started at 83% in 2004, rose to 88% during the airing of the PSA in 2006, and decreased slightly to 84% in 2007, after the five months without being broadcast (note again that the maximum sampling error of +/-4.4%, therefore the decline from 88% to 84% is not

considered statistically significant, although it warranted consideration).

When respondents were asked, “What number would you call if you saw a snake,” people continued to have difficulty reciting the pest hotline number or identifying the appropriate agency. In the 2004 baseline survey, 5% of respondents could recite the Oahu-based number pest hotline number (the new 643-PEST number was instituted in December 2005). In the 2006 benchmark survey, none of the respondents could recite 643-PEST as the number to call, and 1% of respondents recited the old (but still operational) hotline number.

This prompted a switch in outreach methods from primarily television PSAs to a combination of television and radio between January and May, 2007, aimed primarily at teaching people the pest hotline number.

Popular local comedian Frank DeLima was hired to write and sing a pest hotline jingle, which was aired more than 3,500 times on radio stations statewide from January through April, 2007. During this same period, the snake PSA was aired again on three major television network affiliates, to maximize snakes as a “top of mind” issue. The February 2007 benchmark survey showed a modest (6%) increase in respondents able to recite the new hotline number (Qmark Research and Polling 2007).

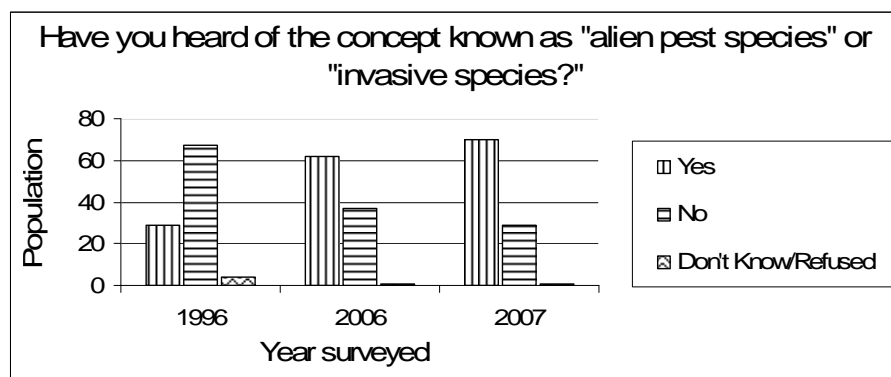
Survey trends show that CGAPS has had some success in reaching the public with traditional media messages delivered by print, television and radio media, as can be seen by the rise in the number of people that “have heard of invasive species” (Figure 1), and brown treesnakes (Figure 2). It is also notable that more than 80% of people are “highly likely” to report a snake (Figure 3), despite the fact that the majority of Hawaii residents have no firsthand experience with snakes.

However, there remains a growing concern that some demographic groups were missed or not accurately targeted. For example, survey data from 2006 revealed that fewer 18-34 year olds think that invasive species are a very serious or somewhat serious issue (77%), compared to 82% of 35-54 year olds and 87% of those 55 and older (Figure 4). The 2006 survey also showed that fewer 18-34 year old males were likely to report a snake if they saw one.

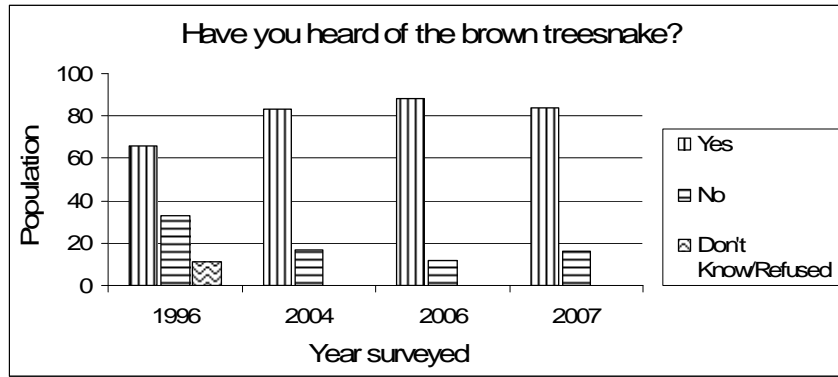
CGAPS conducted a limited experiment using a local marketing company that specializes in marketing to 18-34 year olds. This targeted outreach project was aimed primarily 18-34 year old males, and secondarily at the entire 18-34 year old demographic, and ran from January through March 2007.

Although information about invasive species is readily available, there appears to be little reason for most 18-34 year olds to seek it out. For example, 38% of 18-34 year olds reported getting information from reading the newspaper, compared to 63% of 35-54 year olds and 68% of those 55 and older (Qmark Research and Polling 2007). Therefore, it was decided that campaign materials must create a compelling reason for the 18-34 year old target audience to seek information and provide the information in a way that might appeal to their generation.

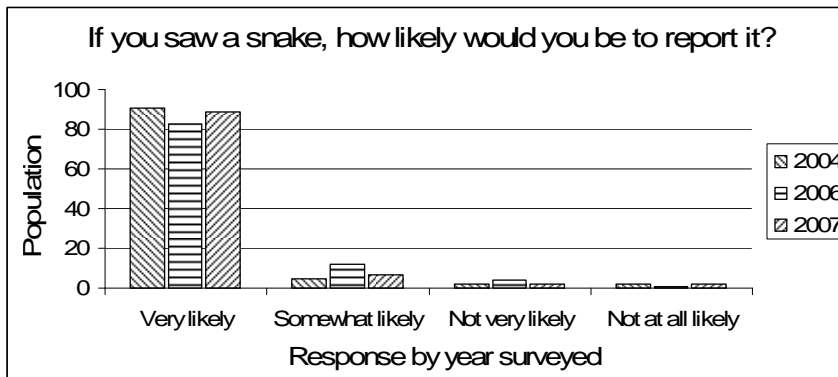
Using principles made popular in the book, “The Tipping Point: how little things can make a big difference,” by Malcolm Gladwell (2000), a trial campaign was designed to capitalize on the potential ability of selected socially popular women to connect with their social networks to promote CGAPS’ standard snake messages. A new website (643-PEST.com) was set up to look like a horror movie trailer, featuring six alluring women “starring” as six invasive species, including a



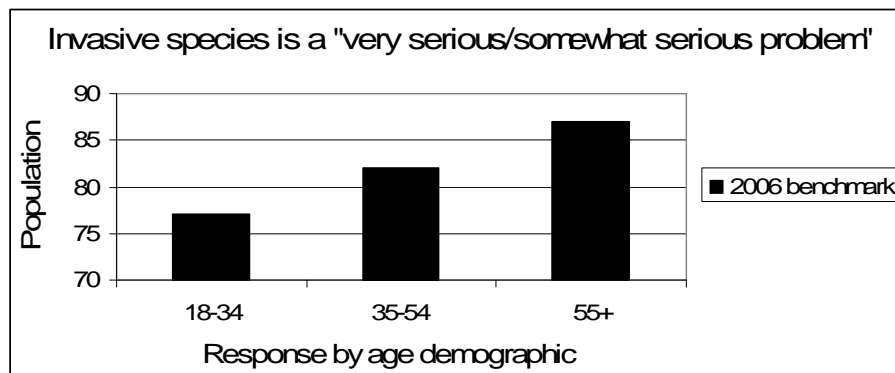
**Figure 1.** The number of respondents that have heard of the concept of invasive species has risen steadily since outreach efforts began in 1997.



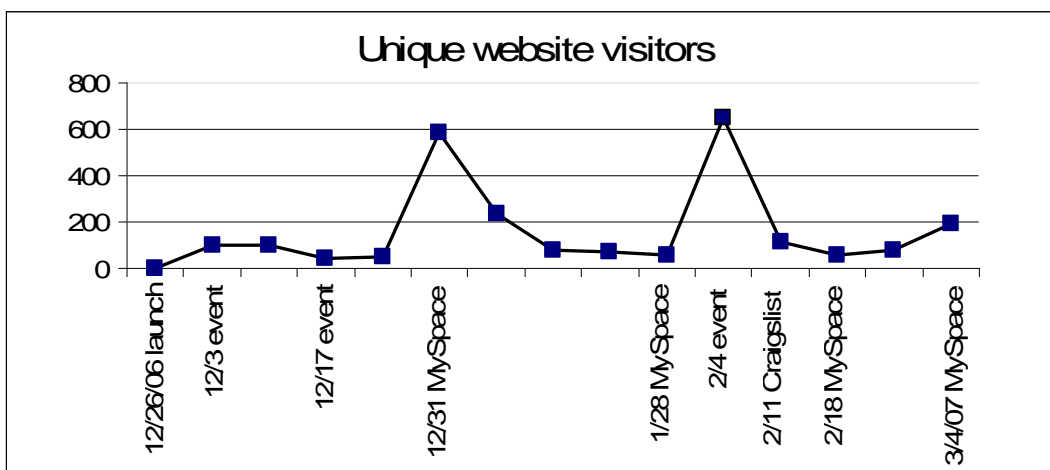
**Figure 2.** The number of respondents that have heard of brown treesnakes has also risen over the years, with a peak occurring in 2006 during the airing of a television PSA about brown treesnakes and other snakes.



**Figure 3.** The intent to report a snake sighting remains high when total population responses (n=501) are averaged, yet if this were plotted by age, it would reveal that fewer 18-34 year olds would be likely to report a snake compared to older age groups.



**Figure 4.** When plotted by age demographic, fewer 18-34 year olds view invasive species as serious problem, compared to older demographic groups.



**Figure 5.** Website page request records for 643-PEST.com show that there were 2421 unique webpage viewers within two months of this targeted outreach effort, with spikes stemming from outreach via networking activities popular with Generation Y.

brown treesnake. The video of the woman portraying the brown treesnake shows her in body make-up slithering around like a brown treesnake. The video is intercut with real brown treesnake video and photos, while a voiceover talks about the threat of these and other snakes pose to Hawaii.

To draw viewers to this website, two gregarious young women were hired to hand out “movie promotion” cards to their peers at local events, such as the import car show, hip hop events, and the Bob Marley Fest concert. In the early morning hours and for several days following these events, webpage requests would spike by as many as 649 unique visitors, for a total of 2421 unique visitors during the two month trial (Figure 5). MySpace profiles were also set up for each of the six women, with photos of them in character and links back to the website. MySpace “friends” totaled 374, and 1,054 people visited one or more of these MySpace pages to view their profiles.

## DISCUSSION

The results of the public awareness surveys reflect the relative success of concerted outreach efforts using short-term media campaigns, opportunistic news media stories, and other techniques. Survey results also highlight the challenges of educating the public and fostering desired actions, particularly when different messages require multiple delivery methods. Careful planning and testing of messages with focus groups can help ensure that messages are appropriate, however, there may be no way to

ensure that outreach methods are appropriately matched with messages and audiences.

There may also be messages and methods that are not appropriate for widespread public outreach, such as the messages that need to be sent to the small subset of the population that continues to smuggle in and harbor snakes. Even with all of the money and effort spent on educating the public, there is another message that has been received and spread among this group—although there are penalties, it is relatively easy and safe to smuggle snakes into Hawaii (Kraus and Cravalho 2001). This issue must be addressed, or this unintended message will continue to spread amongst that portion of the population that does not view it as a serious issue. Furthermore, repeated snake sightings and news of snakes found roaming free or turned in to the amnesty program may have a negative effect on the currently supportive public.

Although the targeted outreach campaign to 18-34 year olds allowed CGAPS to experiment with unique methods for message delivery, it has not been determined whether the target audience is becoming more aware or concerned of the problem, or if the campaign will result in positive response actions. This is not to say that there is not merit to continuing this experiment in some form. CGAPS could wait to see if awareness and concern rises as this demographic group ages, but that would be a gamble.

Furthermore, the huge popularity of social networking and electronic media should not be ignored or thought of as a passing fad. Although

the 643-Pest.com website site may be considered too sexually explicit for widespread public outreach in its current form, efforts will be made to preserve its appeal to the targeted audience, while making it acceptable in the event that the site actually does reach a “tipping point.”

## ACKNOWLEDGMENTS

I thank the CGAPS Steering Committee, members, and the public information officers of all of the CGAPS participating agencies for their valuable feedback and support. I also thank the Hawaii Invasive Species Council public outreach working group for their work in promoting these messages. Funding received for outreach efforts since 2002 is gratefully acknowledged. The Department of the Interior-Office of Insular Affairs, Hawaii Department of Land and Natural Resources-Division of Forestry and Wildlife and Division of Aquatic Resources, Hawaii Invasive Species Council, Hawaii Tourism Authority-Natural Resources Program, National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, and the Pacific Cooperative Studies Unit, have each supported portions of CGAPS outreach activities.

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