

Humane Society International

Case Study of an incentive program to encourage the sterilization of dogs (and cats) and greater attention to animal welfare on Abaco Island in the Bahamas

July, 2001

Thanks and Acknowledgements

This case study could not have been compiled without input from a number of people who put considerable time and effort into planning, supporting, and executing a program to sterilize dogs (and some cats) in the communities on Abaco Island. Kathy Hargreaves and Harry Meline from Berwick, Maine, and Molly and Chris Roberts of Abaco provided the core ideas and on-the-ground effort that made the program work. William Fielding of Nassau provided the statistical expertise, conducted the survey work, performed the data analysis, and wrote up a report of his findings. (His report forms the core of this case study.) Humane Society International (HSI), Spay and Neuter Incentive Program (SNIP), Abaco Animals Require Friends (AARF), the Pegasus Foundation, and Summerlee Foundation provided some of the funds for the clinics as well as important staff support. Thanks go to all those who planned the program and helped put it into effect. The names and contact information for the various individuals and organizations involved in this project are provided overleaf.

HUMANE SOCIETY INTERNATIONAL®
2100 L Street, N.W.
Washington, DC 20037 USA
(1) 301/258-3010 Tel.
(1) 301/258-3082 Fax
hsi@hsihsus.org
www.hsihsus.org

AARF

Molly and Chris Roberts
P.O. Box AB-20856
Marsh Harbour
Abaco, Bahamas
242-367-3262/3 Ext. 201
mollyroberts@oii.net

SNIP

Kathy Hargreaves and Harry Meline
163 Rochester Street
Berwick, ME 03901
207-698-5145
potcats@aol.com

HSI

Kelly O'Meara, Program Director
Humane Society International
2100 L Street, NW
Washington, DC 20037 USA
202-452-1100 (phone)
202-778-6132 (fax)
komeara@hsihsus.org
www.hsihsus.org

PEGASUS FOUNDATION

Cynthia Frisch
941-403-7979
cfrisch@pegasusfoundation.org
www.pegasusfoundation.org

THE SUMMERLEE FOUNDATION

5956 Sherry Lane, Suite 610
Dallas, Texas 75225-8025 USA
214-363-9000 (phone)
214-363-1941 (fax)
www.summerlee.org

INTRODUCTION

Abaco, an island in the Bahamas, has a population of 10,003 in 2,998 households. Of this population, 3,381 (or 34%) live in 1,177 (or 39%) of the households in Marsh Harbour, the largest community on the island (Bahamas Department of Statistics, 2000).

As on other Bahamian islands, there is a population of street dogs on Abaco. These street dogs are known as potcakes. Mostly, the potcakes exist as “community” dogs and are fed to some extent by humans. They also eat garbage. (“Potcakes” get their name from the local practice of dumping the burnt layer of food – the “cake” – at the bottom of the cooking pot out the window where it is eaten by the stray dogs.) In general, the health condition of the potcakes varies from moderate to poor. Also, potcakes are hit by cars and may be poisoned by homeowners who find them a nuisance.

A local animal protection group, Abaco Animals Require Friends (AARF), set out to develop a low-cost spay/neuter program in the 1990s. In 1998, AARF requested assistance from HSI and the Pegasus Foundation. In October of that year, representatives from AARF, HSI, and the Pegasus Foundation met with Robert Sweeting, Member of Parliament for North Abaco, and Silbert Mills, a local government representative. Suggestions for dog management were discussed. It was evident, however, that the government would not provide funds to support an animal control program and that there was a lack of interest in the subject among government agencies.

In the winter of 1998-99, two Americans who had regularly visited Abaco and who were AARF volunteers suggested that they and AARF form a coalition to determine whether a different approach to the clinics would prove more effective. Rather than run “passive” clinics that relied on discounted procedural costs to engage public cooperation, why not work together to raise funds, offer totally free-of-cost clinics and a cash incentive inducement that encouraged cooperation, and use a core of volunteers who would go into the field to canvas neighborhoods, locate reproductive animals, and transport them to and from the spay/neuter clinics.

Project Potcake, as it came to be known, held its first clinic in February, 1999. The unprecedented success of that clinic, which resulted in 187 sterilizations, caused organizers to conclude that they had devised a more successful way to reduce the population of unowned, stray, and roaming dogs on the island.

[The Spay/Neuter Incentive Program (SNIP) was subsequently incorporated as a not-for-profit 501(c)(3) organization by Kathy Hargreaves and Harry Meline (the two Americans) as an umbrella organization to cover their work on Abaco as well as in New England.]

After discussing the results of the first clinic, AARF, HSI, and Pegasus agreed to participate in the program and a commitment was made to fund four sterilization clinics during the year 2000 in February, May, July, and October.

Prior to these clinics, HSI underwrote two surveys, one of dog populations and one of attitudes towards animal welfare and animal control on Abaco. These surveys were conducted by William Fielding, a biostatistician from Nassau. In addition, SNIP employed a statistician to design a program that, when fed basic information such as approximate population, size of litters, longevity, birth and death rates, and causes, provided a target number of female sterilizations needed at each clinic to reduce population by 75% by the end of the first 18 months. Target numbers were exceeded at each clinic. (The clinics also included sterilization of some felines.)

The project included a collaborative arrangement with the two veterinary clinics on the island. Each clinic agreed to run a subsidized sterilization program for 4-6 days. The approximate reimbursement for each animal sterilized was US \$50. In addition, people would be offered an incentive (\$10 for male dogs and all cats and \$15 for female dogs) for each animal they brought in for sterilization to encourage owner participation and the trapping and rounding up of strays. (As the clinics gained credibility and the trust of the locals, the incentive was changed to \$10 for all animals.) The incentive would be given to each person who gave permission for his/her dog to be sterilized. In general, the program focused on females, although no males brought to the clinic were turned away or denied incentive money.

The clinics charged for unexpected costs associated with boarding and antibiotics during the first spay/neuter clinic. In addition, the number of dogs brought in and sterilized was 50% greater than budgeted for.

The first survey of the Abaco dog population was conducted in Marsh Harbour in April 2000. A second survey took place in October, after three of the four AARF/SNIP clinics had been held. The fourth clinic was held in late October, following the second survey. The results of the clinics are given in Table I.

Table I: Results of the four AARF/SNIP Clinics

	February	May	July	October
Dogs Sterilized				
Males	67	46	32	34
Females	86	56	62	49
Total	153	102	94	83
Incentives Paid	\$1570	\$800	\$620	\$429
Cats Sterilized				
Males	21	0	9	15
Females	21	10	15	17
Total	42	10	24	32
Incentives Paid	\$260	\$40	\$80	\$70

THE SURVEYS

The First Survey, February 2000

In the first survey, 105 people from the 1,117 households of Marsh Harbour were interviewed. In addition, a photographic “capture/recapture” study was undertaken to obtain an idea of the roaming dog population.

In this first study (Fielding, 2000), the results produced the following numbers after extrapolation from the sample.

1. Thirty-two percent (32%) of the households own an average of 2.6 dogs each, giving approximately 930 owned dogs in Marsh Harbour.
2. Thirty seven percent of these are females. Fifty percent of the dogs (or approximately 465) are allowed to roam, and 62% of dog owners have at least one sterilized animal. The median age of the dogs was reported to be 3.9 years. Furthermore, 55% of households reported feeding an average of 4.2 roaming dogs each. If each household fed 4.2 unique dogs (very unlikely), this provides an upper bound for the number of roaming dogs of about 2,500.
3. In the photographic “capture/recapture” study, a 12-mile route through Marsh Harbour was traced at the same time on two consecutive days. A roaming dog population of approximately 395 (95% Confidence Limits - 301-489) was estimated from the data.

4. The “capture/recapture” would probably not identify all the roaming dogs in Marsh Harbour because they are territorial and would not spread randomly through the community. The actual route covered 12 miles of streets out of a total of approximately 24 miles in Marsh Harbour. Therefore, it is possible that the number of dogs on the streets could be as high as 790, and the roaming dog population could be even higher, if some dogs have territories that do not include any of the streets. We suggest that it is likely that the actual roaming dog population, including both owned animals (around 465) and stray potcakes, is somewhere between 650 and 750 animals.

The Second Survey, October 2000

The second study included a street survey of 100 people, a telephone survey of 30 people who had participated in the AARF/SNIP in either or both of the May and July 2000 clinics, interviews with veterinarians at both clinics on the island, interviews with staff at both pet shops on the island, and interviews with officers at the Department of Agriculture and the Ministry of Environmental Health.

1. The street survey

One hundred people (50 men and 50 women) on the streets and in other public places (shops, fast food outlets, and offices) were interviewed. Twenty-one percent of the sample reported that they owned a total of 62 dogs (an average of 2.95 per household) of which 42 (68%) were potcakes. Forty-six percent of the pets were males, and 63% of all animals were sterilized. The median age of the 55 dogs for which ages were supplied was 3.5 years.

Seventy-six percent of owners and 42% of non-owners (49% of all interviewees) had heard of AARF/SNIP. Some people appeared to be confused as to who was responsible for the sterilization project because the sterilizations were done at a veterinary clinic. Six of the dogs (10%) in the street study had been sterilized by AARF/SNIP in the preceding 12 months. Seventy-three percent of owners (11 of the 15 people who responded to this question) had taken their adult pets to the veterinarian in the previous 12 months.

Only seven of the females (18%) were now unspayed. Two litters were reported. One litter was born before April 2000. The mother is now spayed. The other litter (of eight pups) was born between April and June 2000, and none survived. This animal, which is

also now spayed, has access to the road. No pup from either litter visited a veterinarian. Forty-eight percent of owners had allowed their pets onto the road in the previous month.

One interviewee reported that some people had taken dogs that they did not own to be sterilized by AARF/SNIP so that they could pocket the \$10 incentive fee.

Forty-three percent of interviewees fed dogs that they did not own. Of these, 56% had fed an average of 2.8 dogs on the previous day. Some feeders clearly stated that they fed dogs “everyday.” Dog owners are less likely to feed unowned dogs, as only 33% of them fed animals compared with 46% of non-owners. Men and women are equally likely to feed animals that they do not own (44% and 42% respectively).

2. Comments

Table 2 compares the results from the two studies. It is apparent that the dog ownership rates are substantially different between the two surveys but there is no way to determine reliably which is more accurate. We suspect that the data from the initial survey is closer to the real number of owned dogs.

TABLE 2: Comparison of demographic data from two studies.

	February	October
Owning Households	32%	21%
Average dogs/owning HH	2.6	2.95
Dogs/All HH	0.832	0.620
Females	37%	54%
Median age	3.9 years	3.5 years
Owners with at least one dog sterilized	62%	76%

In the February study, 32% of households owned an average of 2.6 dogs, and 62% of owners had at least one dog sterilized. Seventy-six percent of owners took their pets to the veterinarian “when needed” or each year, and the dogs had a median age of 3.9 years. Fifty percent of owners allowed their pets to roam, and 55% of households fed dogs they did not own. Sixty-two percent did not know the name of any animal welfare group. The second survey found that half the people had heard of AARF/SNIP, and the percentage of owners with sterilized dogs was higher.

The age profile of the owned dog population indicates that about 25% of the population dies each year, so it can be expected that, in order to maintain the proportion of sterilized animals, some 25% of the owned population (or 232 dogs) must be sterilized each year. A reported 349 dogs were sterilized in the three clinics between the two surveys. If these dogs represent about 20% of the population (63% sterilized in October), then this would indicate that there would be around 1,750 dogs altogether. This figure is not that far removed from the estimate of around 930 owned dogs and up to 300 strays (in the Marsh Harbour area). However, only 10% of the dogs in the October survey were reported as having been sterilized in AARF/SNIP clinics. The remaining 10% were most likely unowned strays that were captured and sterilized during the clinic program.

It is likely that recruits from the “owned” population sustain the free-roaming population, like that on New Providence. Even among the owned population, puppy survival is not good, as evidenced by the one litter where none of 8 puppies survived.

3. The telephone survey

Thirty people who had participated in the AARF/SNIP program in either or both of the May and June 2000 clinics were telephoned. In some cases, where the owner could not be found, another family member supplied information. Thirty owners (of 50 of the 205 animals for which records were available) could be contacted. Some of the other participants no longer had dogs while other owners had animals that had not been sterilized. The people contacted who had sterilized dogs had an additional 31 dogs, so the telephone study covered a total of 81 dogs. A copy of the survey form is included in the Appendix.

Forty-eight percent of the dogs in the study were male. Seventy-nine percent ($n = 64$) of the 81 dogs were potcakes. Overall, 70% of the dogs were sterilized. Sixty-one percent of these had been sterilized under the AARF/SNIP programs. Fifty-one percent of the male dogs were sterilized compared with 88% of females. Fifty percent of the dogs were one year old or less.

Respondents stated that the money incentive offered by AARF/SNIP was not an important reason for having the dogs sterilized. The most common reason given by respondents for saying they would have had their animals sterilized anyway was a wish to avoid having any more litters. For some, having the operation done free-of-charge was sufficient incentive. The most common reason for not having the animal sterilized earlier was because of the age of the dog (66%). Only one person (4%) stated cost as a reason for not having had their pet sterilized. Other reasons included, “it was convenient” (4%), “wanted a litter” (17%), “no one came to do it” (4%), “missed previous clinic” (4%).

All the owners said that they would have their next dog sterilized but some said that they would not pay for the operation themselves. Some owners made it clear that if the dog were a male or a purebred dog (“nice dog”) then they would not have it sterilized. When asked, “how would you get the next animal sterilized”, 13 of the 27 individuals responding (52%) said they would take the animal to the veterinarian. The remainder said they would prefer to wait for the next free (or reduced rate) clinic. At this point the interviewee was reminded how much it cost to spay a dog. Six owners (of the 13) then said that they would not pay the full amount to get their animals sterilized. Seven (29%) owners who had had animals sterilized under AARF/SNIP had taken their animals to the veterinarian in the last twelve months.

4. Interviews with veterinarians at both clinics

One veterinary clinic has been operating for some time, but has only been open three days a week (from January 2001, it will be staffed by a full-time veterinarian). The other clinic has only been open about seven months (since June 2000), but is staffed full-time and answers emergency calls.

One clinic supplied answers that were “guesstimates,” while the other consulted paper records for a specified period and these were multiplied to obtain yearly estimates. As the part-time clinic is staffed by two vets and only one of these was interviewed, it was not possible to obtain a complete picture of the work at this clinic. Apart from a few HSUS and commercial leaflets, the clinics had no information on pet care. However, one clinic is in the process of putting some newspaper articles into leaflet form.

The most common breeds seen at the clinics were:

Breed	Clinic 1	Clinic 2
Labrador	20%	5%
“Toy” dogs/other breeds	30%	5%
Potcakes	50%	10%
Cocker spaniel		52%
Other breeds		28%

Clinic 1 figures are “guesstimates”.

Both veterinarians assist people to buy purebred dogs. It was alleged that one of the veterinarians imported aggressive dogs. Some of the sponsors report that the populations of breeds with a reputation for aggressive behavior (e.g. Pitbulls, German shepherds, Akitas, Chows, Rottweilers, and Dobermans) are on the increase. It is reported but

unconfirmed that these animals are used for dogfight gaming and are intentionally let off leash to attack and destroy potcakes. Deaths from dog-dog aggression have been reported. It is probably just a matter of time before human injuries occur. The brother of a man who breeds Pitbulls in Murphy Town recently attended a meeting where he complained stridently to the Town Fathers about garbage overturned and strewn around by roaming Potcakes. He called for rounding up the dogs and either removing them or containing them in a pound for destruction or adoption.

The frequencies with which the clinics were involved in the following activities were reported as follows:

Aspect	Clinic 1	Clinic 2
No. of dogs seen/year	1,560	250
No. of litters seen/year	17	6
No. Spay/neuter/year§	520	16
No. euthanized/year	21	45
No. of poisoned animals/year	17	12
No. adopted out/year	26#	No program

Figures for Clinic 1 are "guesstimates"

These are sterilized.

§ These are full-priced operations, not paid for by AARF etc.

The numbers offered by Clinic 1 and 2 contrast widely, and both display extreme high and low figures. Given that there are estimated to be only about 2,500 owned dogs on the island and, at most 75% visit a veterinarian annually, it is highly unlikely that Clinic 1 offers true numbers. It is likely that the clinic, which was new, experienced an initial surge in clientele, and that actual annual numbers would be lower. Clinic 2 is a part-time animal clinic that sees patients only 1 to 2 days weekly. However, the numbers obtained for this clinic are low for an annual recording of animals seen, treated, and sterilized.

One veterinarian stated that he had never sterilized a Pitbull or German Shepherd, although both breeds were present on the island. Poisoning occurs in cycles; one clinic saw five poisoned dogs in May but only two in September. These "poisoned" dogs are, of course, the ones not killed outright.

The most common disorders seen at the clinics are: skin problems, allergies and mange, heart worm, parasites, ticks and fleas. The cost of a canine spay varies between \$90 and \$100 while a neuter costs \$80. Annual heartworm treatment at one clinic costs between \$300-400. The bills at the clinics vary between \$45-125 and \$30-150 per visit. An

average visit probably costs about \$45. These fees are higher than those in New Providence where there are five clinics. Costs of some medicines at one clinic were:

Heartworm: \$13.50-33.00 per six tablets
Tick/flea: \$11.50-14.75 per month's dose
Shampoo: \$12.95

Both veterinarians reported that very few owners who participated in the AARF/SNIP clinics visited them after their animals had been sterilized.

5. Interviews with staff at both pet shops

One pet shop has only been open three weeks while the other has been in Abaco since 1993. Both shops offer an adoption service for potcakes. One charges adopters \$10 per animal (the pet is probably unsterilized), the other charges the adopter nothing, but expects a donation from the person surrendering the animal. Both shops recommend that adopters use the AARF/SNIP program to get the animals sterilized. One shop requires adopters to sign an undertaking to have the animal sterilized. Both shops depend upon personal knowledge to decide if the adopter is a suitable owner. The new shop has not yet adopted out any animals, but suggested that its staff would check the yard where the adopted animal was to be kept. It currently has five potcake pups in its care. The other pet shop adopted out 30 pups in January-February 2000, but only two in September 2000. The main period when potcake pups are brought in was said to be from December through March. This suggests a single peak in the breeding of potcakes.

A purebred dog will cost between \$500-800 in both shops, with "toy" breeds in the region of \$1000 or higher. Dogs are not typically sold as gifts. The established pet shop was looking to enhance its fences so that it could contain larger and more dogs. Both shops would import purebred dogs from outside The Bahamas if asked. The cost of dried food (50lbs) at one shop was \$29.50, while a pack of 24 cans of meat cost \$20.90. Neither shop had literature on dog or pet care. The unavailability of literature at both the clinics and the shops is of concern, when 80% of interviewees in the February study wanted more education for children on pet care.

6. Interviews with officers at the Department of Agriculture and Ministry of Environmental Health

Garbage is an important food source for the potcakes. Garbage collection typically occurs every 3-4 weeks at present. However, new arrangements are being made, and there are

claims the situation will improve in January 2001 when more frequent garbage collection will start. Few garbage bins have lids, and it is difficult to prosecute people who do not store their garbage correctly when the collection service is so poor.

Environmental Health said the Department of Agriculture is responsible for collection of dead dogs from the road, but the Department does not do this. Environmental Health does liaise with Agriculture on the matter of stray dogs. The Bahamian Department of Agriculture would like to start an Animal Control Unit, but wants the local government to fund it. There are two traps in Abaco, and the veterinarians assist with euthanasia. Therefore, it is possible for nuisance dogs to be removed legally. Agriculture confirmed that few owners license their dogs. There are few if any complaints from tourists about stray dogs.

Practical aspects of Clinic Operation and Outcome

The Abaco clinics took place in the two veterinary facilities in Marsh Harbour. The dog collection sites were in the townships of Bahamian and Haitian communities. Three main areas were concentrated on in the Bahamian communities – Marsh Harbour, Murphy Town, and Dundas Town.

Two main areas make up the Haitian community on the island – Mudds and Pigeon Peas. These areas were connected by deeply rutted, dirt roads with wooden shanty homes scattered throughout. The Haitian community was extremely impoverished. Car and household parts were littered about, and the homes had only rudimentary facilities, such as communal water pipes/taps and electrical outlets, available.

Within the Haitian communities, most roads were very difficult to travel by car, so one had to walk to speak with local residents about the dogs in the area. Often, children were the most helpful in leading the volunteers to neighbors that “owned” dogs.

Most of the volunteers for the clinics were ex-patriots who live on Abaco and boaters visiting the island. Volunteers played an integral part in this program. There was a strong lack of participation by animal “owners” during these clinics, which left volunteers with the responsibility of finding and bringing in the majority of the dogs to be sterilized. In general, within the Bahamian communities, the volunteers had to drive around in their own vehicles through the different communities and stop when dogs were seen (lying outside, foraging for food, or just roaming). Volunteers would then approach and make inquiries at the nearest dwelling with regard to ownership of the dog(s).

The advertised monetary incentive did not encourage owners to bring their dogs to the clinics despite the surgical sterilization at no cost to them. However, what the incentive appeared to do was overcome the initial suspicion and hostility of owners approached in their neighborhoods. The offer clearly stimulated their assistance in gathering the dogs and facilitating the transportation to the clinics in the volunteer vehicles.

By the time of the July and October clinics, a large number of the “owned” and socialized population of dogs had been sterilized. Many of the dogs found (and collected) had been sterilized at one of the two previous clinics. There was a need to move into the collection of the less socialized and feral population of dogs in the area.

Traps were introduced to the program to assist with the collection of the feral dog population. HSI requested the assistance of the Nassau Department of Agriculture and of David Knowles, director of the local Abaco Department of Agriculture branch. An arrangement was made to lend four dog traps from Nassau to the local Abaco branch. In addition, the Tomahawk Live Trap Company donated four large humane traps to HSI for use in the Abaco clinics.

Unfortunately, the traps were not successful in capturing any dogs. The traps were set near sites where stray dogs were often seen, but the dogs were too hesitant to enter the traps, despite the food laid as bait within the cage.

The dog conditions on Abaco often depended on factors such as weather, food supply, and the estrus cycles of females. Many of the dogs seen were in poor condition and suffering from illnesses such as heartworm infection, parasitic burden, malnutrition and dehydration, skin ailments, and transmittable venereal tumors.

By the later clinics, some physical improvements of dogs sterilized in previous clinics were noticeable. Health improvements were most obvious in recently spayed females. The improvements included weight gain, luster of coat, hair re-growth, improved skin conditions, less parasitic burden, and fewer venereal tumors.

There was competition between veterinary hospitals that enhanced motivation on the part of the veterinarians but created too great a focus on the numbers of dogs/cats being brought into each clinic. The hospitals did not perform surgery at the same rate, and one of the two hospitals had to turn away animals brought in for sterilization.

Many of the dogs delivered in poor health required additional medical assistance during surgery, such as antibiotics, fluid replacement, treatment for venereal tumors, and skin

scrapings to determine types of mange or other skin conditions. These additions raised the individual cost of each surgery and put a financial burden on the budget of each clinic. Many female dogs that were pregnant or in estrus were also sterilized. This also complicated and lengthened the procedure.

During the May clinic, both veterinary hospitals ran out of Ketamine and had to substitute with a much less efficient anesthetic, Sagatal. Sagatal causes unconsciousness for a much longer period of time than Ketamine and, in turn, creates a much longer and more difficult recovery period for the animals. Some dogs would maintain unconsciousness or drowsiness for a 24-hour period. There were not enough cages to hold the incoming and recovering patients. Makeshift recovery rooms had to be developed in what little space was available to allow dogs the time to reach a comfortable state of consciousness before returning to their “homes.”

Weather played a large factor in finding and collecting the target number of dogs for each clinic. Cool temperatures and clear weather (such as in February and October) allowed easier location and collection of dogs. Very hot temperatures (such as in July-exceeding 90 degrees Fahrenheit) caused collection times to change to early morning and dusk hours. Unforeseen weather conditions, such as the intense forest fires on Abaco during the early spring months, created difficulty in finding dogs during the May clinic timeframe.

As the year progressed and the clinics were completed, the importance and effectiveness of spay and neuter procedures became apparent throughout the island. During the July clinic, AARF was approached by a group of local residents of the Sandy Point community on Abaco that was concerned with rumors that local police were recommending poisoning as method of combating “nuisance” dogs hanging around in people’s yards and knocking over trash cans. They were concerned with the growing population of community dogs in their area and wanted to hold a spay/neuter clinic there. They committed to providing the makeshift venue for the clinic and the collection of dogs within the community. The coalition held a one-day clinic in Sandy Point during the six-day October clinic. This clinic proved to be a great success.

The venue was a resident’s two-car garage transformed into a holding facility for dogs in one bay and an operating room in the second bay. A local resident spent an evening constructing wooden crates as substitutes for wire cages. Dr. Bailey and Dr. Hanna performed surgeries throughout the day using makeshift operating tables and the supplies/drugs/instruments they brought with them. The community support was overwhelming, and 32 dogs and 5 cats were sterilized.

Discussion

The AARF/SNIP program appears to have increased the percentage of owners with sterilized animals (possibly by about 15%, although the sample size is too small for this to be termed a statistically significant increase). Some of the owners have also brought in neighbors' dogs to be sterilized. The incentive was important in helping to break down the suspicions of the local communities, but there is less evidence that it encouraged owners to bring in their own animals. However, it may well have encouraged owners to round up neighbors' animals and strays. A more important factor even than the incentive may have been the transport available to ferry dogs to and from the clinics.

The value of the incentive could possibly be increased by restricting it to certain types of animals, such as young females who are the most likely group to have litters. In addition, it may also be useful to offer a raffle in which all those who bring in animals (or help to capture animals) are entered. Given the enjoyment many people gain from gambling and the chance to win a prize, this approach could help to publicize the program as well as encourage the sort of voluntary help that is essential for maximum impact.

There are still barriers to sterilization that include the breed status and sex of the animal. These barriers are similar to those found in New Providence (see Fielding and Mather, 2000). Like New Providence, potcake owners are more willing to have their animals sterilized than owners of purebred dogs.

Owners of dogs sterilized by AARF/SNIP did not show any apparent increased level of pet care for their dogs. About the expected number (30%) had visited a veterinarian in the last year. This observation was backed up by the veterinarians themselves. However, the surveys did indicate a wish for more educational material (especially for children) on pet care. Currently, there is very little such material available to owners.

According to one of the sponsors, there was an evident reduction in the number of stray and roaming potcakes in Murphy Town/Dundas Town – the main areas covered by the clinics in March, 2001. It was estimated that there are now 50–75% fewer potcakes than one year ago. The majority of the remaining dogs seen are recognized as animals that have been sterilized. In addition, other than one dead cat, no dog road kills were observed over a two-week observation period. Before the clinics started, road kill sightings averaged one dog per day. No litters of puppies were observed or reported, whereas one

year earlier there would have been at least five. Only one to two pregnant females and only one nursing potcake were observed, which was down from about 12 a year before. Finally, only two emaciated potcakes with severe hair loss were observed, down from 10 to 20 a year earlier.

A great deal of information, valuable for any other island nation concerned about an overpopulation of dogs, was gained during this program. The Abaco Project proved successful. Still, there are recommendations that can be offered to insure a more efficient program:

1. It is necessary to maintain a relationship with a local government agency and involve the agency whenever possible. It is important to keep agencies informed of upcoming events and success rate of the program.
2. From the beginning of the program, an accurate assessment of the data/population numbers that will be dealt with throughout the program should be set. An idea of the population numbers to be worked with will identify a target number to reach for each individual clinic.
3. Take into consideration the typical weather conditions when deciding upon dates to hold the clinics. For example, during the hot summer months, it may be necessary to hold a clinic. Keep in mind, however, that collection of dogs will be easier at dawn and dusk when dogs are visibly foraging.
4. Conduct a meeting specifically with the veterinarians who will be involved in the program to discuss their financial expectations for procedures and unforeseen complications during surgeries. If all potential circumstances that could result in additional costs are discussed, it will be easier to stay within the budget.
5. Committed volunteers are imperative to the efficiency of the program. If possible, develop a list of trustworthy volunteers who are signed up for certain times at each clinic. Ideally, during clinics, there should be one person at each clinic site who handles all documentation. AARF/SNIP developed clinic intake forms to record the animal influx and number sterilized. One set of these sheets after each completed clinic was collected, assessed, tabulated, and stored in perpetuity by SNIP. A copy of this form is available, if desired.
6. There are liability issues to consider and contend with because there are potential risks to volunteers with dog bites, cat scratches, and transferable skin

conditions/parasites (i.e. mange), etc. Those who don't have health insurance or are reluctant in any way to handle the animals should be assigned to hands-off duties such as administration or post-operation observation.

7. The development of a form/survey that can give useful feedback from the public can prove to be a helpful tool in assessing the success of the program and realization of what possible changes need to be made. This form can be handed out pre- or post-op to each individual that has his/her dog/cat sterilized during the clinics. (Please see Appendix 1.)
8. The large numbers of animals that will be coming through these clinics provides a great opportunity to gather information about the dog/cat population that otherwise would be very difficult to assess. For example, checking the teeth of each dog/cat and recording the information for general age assessment would be useful. Information on the general ages of the population and the typical mortality ages on the island can easily be assessed.
9. Advertisement is vital to the success of the program. The more people that are reached by advertisements, the more reputable and credible the program will become. Positive hearsay is necessary for the continuance of a program, and good advertisement via radio, newspaper, flyers, etc. will expedite its success. In a community such as Abaco, word of mouth will carry news of both the success and the failures of previous clinics. It is vitally important to "live up to one's word" in a community such as Abaco because everyone is familiar with one another and often related to one another in some way.

Finally, feline breeding on the outer Cays of Abaco Island is, by and large, unchecked. Unwanted litters and intact adults are trapped, collected, and sometimes euthanized. More often, they are drowned or removed to remote cays or unpopulated areas (such as Hole in The Wall, the prime rookery of the endangered ground-nesting Abaco Green Parrot) where the cats either starve or multiply unchecked. A comprehensive spay/neuter program for cats – in both populated and unpopulated areas of Abaco – is needed. A humane and organized program to reduce Abaco's stray, roaming and reproductive feline population would greatly reduce feline suffering and would also enhance the safe breeding of endangered Abaco Green Parrots. In the past, SNIP and AARF have endorsed but not solicited the spay/neutering of cats at our clinics. SNIP and AARF now feel they must encourage and facilitate feline spay/neuter by offering funding and organizational expertise to help address the problem.

Appendix 1

Survey form used in the street study in October 2000

**Dog Survey – Abaco
Humane Society International**

Date:.....Survey Form No.:.....

Interviewer:.....

Location of interview:.....

Sex of interviewee: Male / Female

1. How many dogs do you own?

If you do not own any dogs, please go to question 9.

2. What is the age/sex/status of each animal? (M=male, F=female, U S = unspayed/unneutered. Delete the U, if sterilized)

Dog 1 – M /F /U S

Dog 2 – M /F/ U S

Dog 3 – M /F/ U S

Dog 4 – M /F/ U S

Dog 5 – M /F/ U S

Dog 6 – M /F/ U S

3. How many are potcakes?

If there are no females, go to question 7.

4. How many litters have your females had in the past 12 months?

5. How many pups were born after June?

How many pups are still alive?

6. How many were born between April and June?

How many are still alive?

7. Have you taken any of your adult dogs to the vet in the past 12 months? Yes / No

8. Have you taken any of your pups to the vet in the past 12 months? Yes / No

9. Have you heard of the AARF/SNIP spay/neuter programme? Yes / No

If not a dog owner, go to question 13.

10. How many of your dogs were spayed/neutered by AARF/SNIP in the last 12 months?

If none, go to question 12.

11(a) If animals were sterilized by SNIP, would you have brought you dogs if the cash incentive had been

Circle one: (a) No money (b) \$3 (c) \$7

11(b) Explain why: _____

11(c) Why did you not get the animal(s) sterilized before? _____

12. Have any of your dogs got on to the road in the past month? Yes / No

13. Do you feed roaming dogs? Yes / No

14. How many roaming dogs did you feed yesterday?

THANK YOU FOR YOUR HELP IN THIS STUDY

Survey form used in the telephone survey

SNIP Survey – Abaco
Humane Society International

Date:.....Survey Form No.:.....

Interviewer:.....

Sex of interviewee: Male / Female

-
1. How many dogs do you own?
 2. What is the age/sex/status of each animal? (M=male, F=female, U S = unspayed/unneutered. Delete the U, if sterilized)

Dog 1 – M /F /U S Dog 2 – M /F/ U S Dog 3 – M /F/ U S
Dog 4 – M /F/ U S Dog 5 – M /F/ U S Dog 6 – M /F/ U S

3. How many are potcakes?
4. How many of your dogs have been sterilized by SNIP in the past 12 months?
5. Would you have brought your dogs if the cast incentive had been:
Circle one: (a) No money (b) \$3 (c) \$7

Explain why: _____

6. Why did you not get the animal(s) sterilized before SNIP was available? _____

7. Will you get your next dog sterilized?
8. How will you get your next dog sterilized? _____

9. Would you pay to get your next dog sterilized? Yes/ No
- (Added later) 10. Have you taken your dogs to the vet in the past year? Yes/ No

THANK YOU FOR YOUR HELP

Abaco Case Study Addendum

*From a report by Kathy Hargreaves, President, Spay/Neuter Incentive Program
To the Edith J. Good Fiduciary Trust
December 2001*

The Potcake population is not only reduced but is well under control in targeted communities on the island of Abaco. This was accomplished within the timeframe of a series of seven clinics proposed and initiated as a prototype in 1999 and conducted through October, 2001, with the assistance and support of organizations such as Humane Society International, the Edith J. Goode Fiduciary Trust, Pegasus Foundation, and the Summerlee Foundation as well as private donors and fund raising efforts. Taking all expenses of Project Potcake into account, we estimate the average cost per procedure to be approximately \$90; this figure does not include trip-related personal expenses absorbed by the principals of SNIP or on-going animal welfare expenses assumed by AARF.

As a result of the smaller pool of reproductive dogs, we believe future clinics also will produce similarly low numbers and will need to be held only once per year in “completed” locales such as Marsh Harbour and Sandy Point, as well as in other communities as they occur. In other words, what we see now is the need for annual “mop up” clinics that will maintain rather than eliminate the breed.

It is important to note that pockets of high canine to human populations still exist in northern Abaco communities beyond Cooperstown, such as Fox Town, Crown Haven and Cedar Harbour. A day spent surveying these communities in October indicates there are as many as 150 reproductive animals there. Furthermore, the general condition of these animals is poor; extensive mange and severe starvation are common. Conditions are much the same as they were in Marsh Harbour before the clinic series began. Resolving these problems is a priority in 2002. A clinic focusing on Cooperstown and three communities to its north will be held in the Winter of 2002.