

We plan to equip Highlands lakes and other waterways with boats (canoes), capture equipment (lights, spears, buckets etc) and safety equipment (life jackets etc). This equipment will overcome the barriers faced by volunteers as they participate in bullfrog monitoring & capture. We also face barriers to move boats – both the practical transportation and the biological risk of cross-contamination and relocation of microorganisms.

The “kit” per team/lake is approx \$950 – or roughly the equivalent of one night of Stan Orchard’s effort.”

STAFF RECOMMENDATION

It is recommended that Council:

1. Receive the report on the volunteer bullfrog eradication activities for 2010 and refer the funding request to the 2011 budget deliberations.
2. Provide a copy of the report to the Minister of Environment along with a request for further consideration of the establishment of Provincial funding to address this regional issue.

Respectfully Submitted



Christopher D. Coates
Chief Administrative Officer

Attach.

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Highlands Bullfrog Eradication Program

Prepared by Pattie Whitehouse & Neville Grigg, March 2011

To Council
April 4, 2011

INTRODUCTION

The American Bullfrog invaded the Highlands more than a decade ago and within a few years was widespread throughout the district. Volunteers action to mount regular eradication efforts have resulted in good to excellent control of bullfrogs on some Highlands lakes, notably Fizzle, Fork and Teanook Lakes. Less success has been seen at lakes where volunteer patrols are irregular, including Eagles, Mary, Matson, Mitchell and Second Lakes, but even there, volunteer efforts have kept bullfrog populations somewhat in check and have provided data useful for monitoring purposes. However, there are many other lakes, wetlands and ponds in the district that are capable of harbouring breeding populations of bullfrogs, and few of these have been monitored to any extent.

In 2010, Highlands council took action against the bullfrog invasion, publicizing the eradication program and encouraging resident engagement as well as budgeting funds to support volunteer efforts and secure the bullfrog control services of Stan Orchard. Council received Orchard's report last November. Following is a summary of eradication activities and observations conducted by volunteers in 2010, with recommendations for 2011.

BULLFROG REPORTS

Following publication in *The Highlands News* of information about the Highlands bullfrog eradication program, 19 Highlands residents called or e-mailed to report seeing or hearing bullfrogs. (Reports were also received from residents of Cassidy and Nanaimo.) Reports covered the spectrum of the bullfrog life cycle, from tadpoles to calling adult males, and the length and breadth of the Highlands, from River Road in the south to Ross Durrance Road in the north, the end of Millstream Road in the west to Compton and Bukin Roads in the east. The first report was received the third week in April, the last the third week in September, a span of five months.

The volunteer program was not far enough along in its development to send out volunteers to confirm these reports; however, the intake volunteer interviewed the informants extensively to determine the reliability of the information. Certain inconsistencies in reporting (e.g., tadpoles reported at Eagles Lake by one informant while another reported none about the same time; reports of calling in the early spring, weeks before bullfrogs can be expected to start calling) suggest that a public workshop addressing identification and appropriate response throughout the bullfrog life cycle would be useful.

BULLFROG ERADICATION ACTIVITIES

Volunteer eradication activities were not fully reported. Confirmed are at least 15 nights spent hunting bullfrogs, involving an estimated 7 or 8 volunteers. Recorded catch by volunteers include 16 mature males, 5 mature females, 17 young adults and 9 juveniles, plus two of undetermined age killed by residents not involved in the program (49 total). Actual numbers may be higher. Sites known to have been patrolled by volunteers were Teanook Lake, the pond at 637 Lost Lake Road, a pond on Stewart Mountain Road, Fork Lake, Second Lake and Third Lake.

While these numbers are much lower than those reported by Stan Orchard, it is important to keep in mind that we sent Orchard to locations where there have been few or no control efforts in the past.

Finlayson Arm Road, where Orchard reported his highest catches of mature (breeding age) bullfrogs, was virgin territory.

It should be noted that Orchard planned and carried out his activities in consultation with and with the assistance of Highlands volunteers.

In late September, Neville Grigg and Pattie Whitehouse toured the Bear Mountain Valley golf course (with approval and assistance from Bear Mountain) to assess the water features on the course with respect to suitability as bullfrog habitat. It being so late in the season, only one bullfrog (a young adult) was seen; however it was clear that careful monitoring and prompt eradication efforts will be required to ensure that the golf course ponds, especially the large reservoir, do not serve as perpetual sources of reinfestation.

VOLUNTEER PROGRAM DEVELOPMENT ACTIVITIES

Program development efforts in 2010 and the early part of 2011 focused on record keeping, recording reports from the public and acquiring equipment to support volunteer bullfrog eradication activities.

Funding of \$5,000 from Council through the Highlands Stewardship Foundation was received in the middle of last bullfrog season. While a portion of the funds were used to buy the materials for 10 bullfrog spears (@ \$22) and 5 powerful rechargeable flashlights (@ \$175), purchase of canoes was delayed until this winter and early spring, when prices for good used equipment are dramatically lower. To date, we have bought one canoe @ \$400, have a second of similar price and quality in the works and have identified several others for consideration. In addition, Kenn Faris donated a canoe, which was repaired by Gord Baird.

Our immediate goal is to establish, by the time the season starts in May, 5 canoes equipped with spears and flashlights at 5 Highlands lakes, for the use of volunteers on bullfrog patrol. We expect to have expended the \$5,000 by the end of April to achieve this goal. By bullfrog season in 2012, we wish to have 10 lakes similarly equipped.

In the past, lack of equipment, especially canoes and lights, has been a barrier to the expansion of volunteer activities. Having canoes in place also addresses hygiene concerns about the possibility of introducing plants and organisms carried on canoes to lakes where they are not currently established.

DISCUSSION

The collaboration between Highlands volunteers and Stan Orchard worked well in 2010. Orchard responded readily to requests to attend particular sites and was able to work in sites (such as the north end of Matson Lake) where conditions were unsuitable for the equipment available to volunteers. His work was facilitated by the availability of a Highlands volunteer to take him to new sites, alert residents to his visits and provide contact and access information.

As the acquisition of equipment supports expansion of volunteer engagement this year, continued, and preferably closer, collaboration with Orchard will ensure that resources are used in the most cost-effective manner.

The importance of engaging the community and supporting the volunteer effort cannot be underestimated. We didn't know until we started hearing from residents last year how widespread the bullfrog infestation is. Now that we know bullfrogs inhabit small ornamental ponds, willow-filled

wetlands and woodland creeks as well as lakes and large ponds, it becomes even more important to have volunteers available to assess and monitor sightings, determine the best course of action in each case and follow through on it.

In his report, Orchard suggested that a relatively low bullfrog infestation and apparent high mortality rate of eggs, tadpoles and juveniles in Highlands might be due to shady conditions and relatively cool water temperatures, noting that “the number of adults per site is generally very small even though bullfrogs have been present at many of these sites now for a number of years” and that “numbers per site are still relatively small, with the highest densities of adults concentrated in some of the smallest and easiest to access ponds.” He said, “It is reasonable to conclude that many adult bullfrogs are being drawn away from the larger, margin-shaded lakes to shallower and more sun-exposed ponds that heat more quickly.”

In general, we agree with Orchard’s conclusions, but suggest that they are not complete. There are other factors that should be considered when seeking causes for the relatively low levels and pattern of bullfrog infestation in the district.

For example, Highlands may well have a higher concentration of predators than other areas, particularly more urban areas, where Orchard has worked. We know from observation that herons, otters, raccoons and garter snakes all eat bullfrogs; one resident reported a heron completely wiping out the bullfrogs in her heavily infested small pond over the course of a summer.

The other significant factor is the volunteer effort. Sites where, according to Orchard’s report, he found highest densities of adults were also sites where volunteers have not been active. Sites with lower densities tended to be where volunteer efforts have been made. We have hypothesized that, in fact, the high-density, uncontrolled sites are the sources for repeated re-infestation of sites where volunteer programs are in place.

Councillors wishing to evaluate the impact of the volunteer effort are welcome to visit Teanook Lake, where the tree frog chorus is much louder this spring than it has been for the past six years.

RECOMMENDATIONS

- 1) That Council again budget \$4,400 for Stan Orchard’s services and \$5,000 through the Highlands Stewardship Foundation for continued equipment acquisition in support of the volunteer effort.
- 2) That Council support a workshop as described above to assist residents in understanding the life cycle of the bullfrog and identifying it at its various stages of maturity, and to educate residents about appropriate response to sightings of all stages of bullfrogs.
- 3) That Council continue to request that the Province provide long-term, cooperative funding for a sustained bullfrog management program leading to regional eradication.