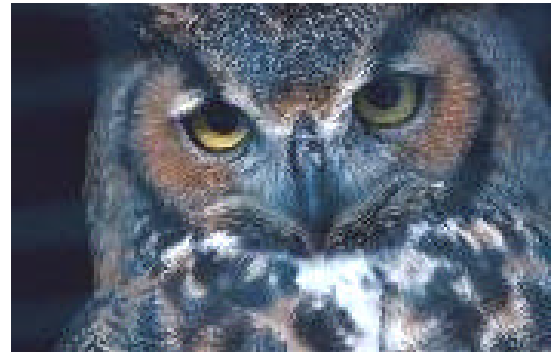


Owl Monitoring Program – 2003 - In the Edson Forest Management Agreement Area

- Between March 12 and April 17 2003, Weyerhaeuser Company Ltd. conducted systematic owl surveys in the Edson Forest Management Area (FMA). The surveys are part of a comprehensive Wildlife-Biodiversity Monitoring Program intended to assess the occurrence and distribution of species across each Weyerhaeuser Forest Management Area in Alberta.
- Surveys are repeated every three years and were previously conducted in the Edson FMA in spring 2000. Over time, repeated surveys will allow comparison of owl occurrences and distribution in response to landscape level forest management practices.
- Owl surveys are conducted along resource access roads, pipeline right-of-ways and winter haul roads. In 2003, all routes established in 2000 were re-sampled. Eight new routes were added in an attempt to increase sample size, and thus improve monitoring capabilities
- Each route has 12 sampling stops located 1.6 kilometers apart. At each stop, in an attempt to solicit territorial responses from breeding owls in the area, audio recordings of owl calls are broadcast, followed by periods of silent listening. When an owl is detected (heard or observed), the time, broadcast interval, behavioural response, compass direction estimate, and distance estimate are recorded. A set of decision rules was developed for determining which owl calls constituted separate individuals.
- Nighttime surveys began one half hour before sunset and every stop along the route was sampled. Daytime surveys began 3 hours before sunset and every second stop was sampled.



Results and Key Findings

- In 2003, 216 sampling stations were established along 18 routes. Most of the routes were visited twice, resulting in a total of 396 stops.
- Eight species were detected (heard or observed) during nighttime surveys. Only 4 species were detected during daytime.
- The 2003 season resulted in a slight increase of owl detections during both daytime and nighttime.
- In 2003, of the total 260 detections (owls heard or observed) during the nighttime surveys, 205 were considered individual owls. The two smaller owls, Northern Saw-whet Owl and Boreal Owl, dominated over 70% of these detections. However, when data analysis is limited to those routes originally sampled in 2000, the proportional abundance shifted toward the Boreal Owl as the most abundant species

*This summary is based on the work of:
Roger K. Brown
Aspen Ecological Consulting
8724 101 St.
Edmonton, AB*

- During the 2000 surveys Great-horned Owls were heard or observed 21 times. In 2003, only 6 observations were made along the same routes.
- The number of Boreal Owls detected during the nighttime survey increased from 25 in 2000 to 67 along the same routes in 2003.
- Fourty seven owl detections (heard or observed) were recorded during daytime surveys. The majority of these owls were Northern Pygmy Owl (42 detections). The increase is remarkable considering that in 2000, along the same routes, only 5 Pygmy Owls were detected.

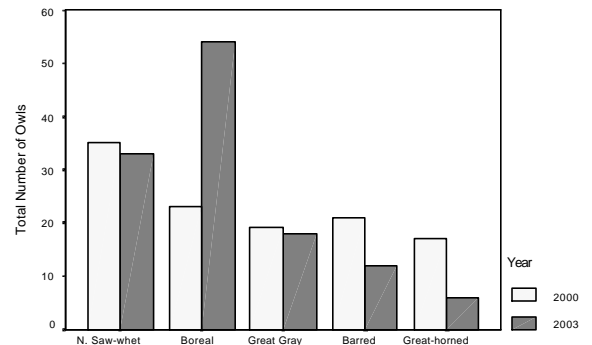
Table 1. Summary of owl detections (owls heard or observed) along the 10 routes established in 2000 and re-sampled in 2003, as well as the total number of detections (owls heard or observed) along all 18 routes surveyed in 2003.

Species	Daytime Survey		Night-time Survey	
	2000	2003	2000	2003
Northern Saw-whet Owl	0	0 (0)	43	45 (100)
Boreal Owl	0	0 (0)	25	67 (90)
Great Gray Owl	4	3 (3)	25	25 (28)
Barred Owl	0	1 (1)	22	16 (19)
Great-horned Owl	0	0 (0)	21	6 (13)
Northern Pygmy Owl	5	25 (42)	0	5 (7)
Northern Hawk Owl	1	1 (1)	0	0 (1)
Long-eared Owl	0	0 (0)	1	1 (2)
Total	9	30 (47)	137	165 (260)

Note: in 2003 the number of routes was increased from 10 to 18. The total number of detections in 2003 is presented in brackets.

Conclusions

- Eight species of forest-dwelling owls occur in the Edson FMA, but only five of these are common enough to use reliably for long-term population monitoring. The structure of the owl community appears to be dominated by the smaller species (Northern Saw-whet Owl and Boreal Owl). The three other species are considerably larger, occur in moderate numbers and are detected sporadically (Great Gray Owl, Barred Owl, and Great-horned Owl).
- The results from the daytime surveys indicate a notable increase in the number of Northern Pygmy Owls. Reasons for such a difference in the number of detection are unclear. Possible explanations include irruptive local population densities, highly variable detectability, high annual variation in density or any combination of the above.
- Owls are difficult to study due to their nocturnal habits, natural rarity, large home range size, nomadic movements and suspected natural fluctuations in population levels. Long-term monitoring should help in better understanding population dynamics.



Total number of owls from original 10 routes surveyed between 2000 and 2003 (excluding uncommon species: Northern Pygmy Owl, Northern Hawk Owl, and Long-eared Owl)

This Research Report was prepared by Luigi Morgantini and Christy Strocel, Weyerhaeuser Company, Alberta Forestlands.