SPECIES ACCOUNT

Species Data

Common Name:	**MacFarlane's Western Screech-Owl**
Scientific Name:	*Otus kennicottii macfarlanei*
Species Code:	B-WSOW
BC Status:	Red-listed
Identified Wildlife Status:	Version 2
COSEWIC Status:	Endangered

Project Data

Project Name:	Central Okanagan Terrestrial Ecosystem & Wildlife Habitat Mapping Project
Project Type:	Terrestrial Ecosystem Mapping
Area:	Central Okanagan
Ecoprovince:	Southern Interior
Ecoregions:	Thompson-Okanagan Plateau
Ecosections:	Northern Okanagan Basin (NOB)
BGC Units:	IDFxh1, PPxh1
Map Scale:	1:20 000

Distribution

Provincial Range

The *macfarlanei* subspecies of Western Screech-Owl is resident in the southern interior from Adams Lake and Shuswap Lake south through the Okanagan valley (Campbell *et al*. 1990). Interior Western Screech-Owls have been documented from the Okanagan and Similkameen Valleys, the Thompson and Nicola drainages, and from isolated localities near Grand Forks, Cranbrook, Creston and Nelson (Hobbs 2002). Until this year, breeding sites were known only from the Okanagan valley (Campbell *et al*. 1990), but breeding has recently been confirmed in the West Kootenays near Creston (M.A.Beaucher & J.Dulisse pers.com). Nests have been reported from White Lake, Osoyoos, Kelowna (Cannings *et al*. 1987), and Duck Lake (M.A.Beaucher & J.Dulisse pers.com). It probably breeds, at least irregularly, in the Thompson Valley between Chase and Spences Bridge, and in the West Kootenays near Castlegar (Cannings 2002).

Elevation Range

Western Screech-Owls are generally found below 600 metres, and no nests have been found above 540 metres in BC (Campbell *et al.* 1990). In Utah they have been found at elevations up to 1645 metres, and in Wyoming at 2380 metres (Dorn and Dorn 1994).

Distribution in the Project Area

Records exist throughout the study area, particularly in the southern portion of the east side of the study area (Hobbs 2002).

Ecology and Habitat Requirements

Screech-owls are resident year-long in BC. Nesting begins in mid-March, and young are generally fledged by late August (Campbell *et al*. 1990). Clutches may contain 1-4 eggs, with most nests in BC having 2 or 3 eggs (Campbell *et al*. 1990).

In British Columbia, Western Screech-Owls prefer deciduous forests, especially along lakeshores and streams (Stevens 1995, Campbell *et al*. 1990). Territories are closely associated with riparian habitats, particularly those dominated by black cottonwood, trembling aspen, and water birch (Cannings 1997). Cottonwood and water birch habitats appear to be favored in the dry interior, ranging from lowland mesic riparian to upland riparian areas (Hobbs 2002). Although closely associated with riparian habitat, they are occasionally observed in mixed coniferous forests away from riparian areas (Holt and Hillis 1987).

Western Screech-Owls are secondary cavity nesters, and will use nest boxes, but generally depend on abandoned cavities left by Northern Flicker or Pileated Woodpecker, and on natural cavities (Marti and Marks 1987, BC Environment 1996, Cannings 2002). Nests have been found in black cottonwood, red alder, Douglas-fir, western redcedar, and western hemlock that were greater than 25cm dbh (Campbell *et al*. 1990). Generally interior screech-owls in BC nest in natural cavities or woodpecker holes in birch or cottonwood, or nest boxes (Fraser *et al*. 1999). Nest trees can be any decay stage from wildlife tree class two to six (Cannings 2002). They may also use old magpie nests and cliff cavities (Marti and Marks 1987, Kaufman 1996).

Nest heights in BC ranged from 1.2 to 12.2 m, with most between 3.0 and 4.6 m (Campbell *et al*. 1990). The only nest found with eggs in the Okanagan was 1.5 m above the ground in a hollow stub of a cottonwood; two other nests with young were found in hollow or dead cottonwoods (Cannings *et al*. 1987).

Screech-owls require cavities for roosting as well as nesting, but will also roost in deciduous thickets or coniferous trees (J. Hobbs pers com.). Day roosts are usually in deciduous trees with a mean height of 21.2 m, at an average of 4.6 m high (Kirk 1995). The tree density around roosts tends to be greater than in the surrounding forest (Hayward and Garton 1984).

Although they are reported to prefer open habitats (Campbell *et al.* 1990, Kirk 1995), Hobbs (pers.com.) suggests that they use forested areas adjacent to clearings for roosting and nesting habitat. These forested areas probably offer protection from predators such as Great Horned Owls. Barred owls, large hawks, and weasels are likely predators as well.

Home range size can be very small in optimal habitat, but in BC a reasonable estimate would be 2.5 to 10 ha (Cannings and Angell 2001). Western Screech-Owls are tolerant of human presence and will breed near human settlements and even in urban areas (Marti and Marks 1987, Campbell *et al.* 1990).

Western Screech-Owls hunt for prey on or near the ground in mixed deciduous/coniferous forests, usually near a creek or pond. Upland forest habitat is likely also important for foraging (Cannings 2002). They have also been found hunting along edges of fields (BC Environment 1996). They tend to be generalist feeders with diets that include voles, mice, shrews, small birds, reptiles, amphibians, fish, crayfish, insects, and earthworms (Cannings 2002, Kaufman 1996, BC Environment 1996), but are dominated by small mammals and large insects. However, the importance of amphibians in the

diet may be understated, based on an observed use of habitats in which amphibians, particularly tree frogs, were abundant (J. Hobbs pers.com.).

Reproducing

Security/Thermal Habitat

Interior screech-owls occupy mature to old deciduous and mixed forests. They are closely associated with riparian habitats dominated by cottonwood, water birch or aspen. Tree cavities, often provided by Pileated Woodpecker or Northern Flicker, are required for nesting and roosting. Large diameter (>25 cm dbh) wildlife trees in decay stage 2 to 6 have the potential to provide nest cavities. Sufficient overstory cover should be present to reduce vulnerability to aerial predators.

Ratings

This model employs a 4-class rating scheme, as there is insufficient knowledge of habitat requirements to use a 6-Class scheme yet there is sufficient knowledge to go beyond a 2-class rating scheme (RIC 1999).

Provincial Benchmark

Ecosection	Southern Okanogan Basin
Biogeoclimatic Zones	BGxh, PPxh
Habitats	low elevation (<600 metres) mature to old riparian forests

Map Themes

Life Requisite	Habitat Use	Season	Rating Code	Ecosystem Attributes
Reproducing	Security/ Thermal	Growing season	STRE	• mature riparian and mixed forest

Ratings Assumptions

Reproducing – Security/Thermal	
Site Series	• Stands containing cottonwood or birch rated up to High, aspen up to Mod.
Structural Stage	• Stages 6 and 7 up to High, stage 5 up to Moderate, stage 4 up to Low.
Shrub Density	• No effect.
Aspect	• No effect.
Slope	• No effect.

Map Interpretation

Mapping for Western Screech-owl includes only one theme: breeding habitat (*security/thermal habitat for reproducing during the growing season* – STRE) but also portrays a 150 m buffer around suitable breeding habitats for potential foraging.

The highest-value method will be used to display suitability ratings, so the highest rating of any of the ecosystem units occurring will be used to color the entire polygon.

Screech-owls will use small areas of suitable habitat, as their preferred habitats are generally small and patchily distributed. Connectivity between habitats is not a large concern, but fragmentation of existing habitats may severely reduce the ability of the area to support owls.

Management Recommendations

Maintain deciduous and mixed stands, including wildlife trees, to provide nesting and foraging habitats. Incorporate surrounding natural habitats, particularly meadows, as a buffer to these areas.

Literature Cited

BC Environment. 1996. Managing identified wildlife guidebook 1.0, Kamloops Forest Region. Ministry of Environment, Lands and Parks and Ministry of Forests. Internal Government Review Draft.

Campbell, R.W., A.K. Dawe, I. McTaggart-Cowan, J. Cooper, G. Kaiser and M.C. McNall. 1990. Birds of British Columbia: Volume 2, Nonpasserines; Diurnal Birds of Prey through Woodpeckers. Royal British Columbia Museum.

Cannings, R.J. 2002. Interior Western Screech-Owl, *in* Standards for managing identified wildlife, Version 2. K. Paige ed. Min. of Water, Land and Air Protection. Victoria, BC.

Cannings, R.J. 1997. A survey of the Western Screech-Owl (*Otus kennicottii macfarlanei*) in the interior of BC. Prepared for Min. of Environment, Lands and Parks.

Cannings, R.A., R.J. Cannings and S.G. Cannings. 1987. Birds of the Okanagan Valley, British Columbia. Royal British Columbia Museum.

Dorn, R.D. and J.L. Dorn. 1994. Further data on Screech-Owl distribution and habitat use in Wyoming. Western Birds. 25: 35-42.

Fraser, D.F., W.L. Harper, S.G. Cannings and J.M. Cooper. 1999. Rare birds of British Columbia. Min. of Environment, Lands and Parks, Wildlife Branch and Resources Inventory Branch. Victoria, BC.

Hayward, G.D. and O. Garton. 1984. Roost habitat selection by three small forest owls. Wilson Bulletin 96(4): 692-701.

Hayward, G.D. and O. Garton. 1988. Resource partitioning among forest owls in the River of No Return Wilderness, Idaho. Oecologies. 75: 253-265.

Hobbs, J. 2002. Confidential folio of Western Screech Owl Sites in the Southern Interior of BC. Habitat Branch, Min. of Water, Land and Air Protection.

Holt, D.W. and J.M. Hillis. 1987. Current status and habitat associations of forest owls in Western Montana. Biology and conservation of Northern Forest Owls. Symposium Proceedings. US Dept. Of Agriculture, Fort Collins, Colorado.

Kaufman, K. 1996. Lives of North American Birds. Houghton Mifflin Company. Boston, New York. 675 pp.

Kirk, D.A. 1995. Status report on the Western Screech-Owl (*Otus kennicottii*) in Canada. Committee on the Status of Endangered Wildlife in Canada, Ottawa, Ont.

Marti, C.D. and J.S. Marks. 1987. Medium-sized owls. Proceedings of the Western Raptor Management Symposium and Workshop. National Wildlife Federation Scientific and Technical Series No. 12. Boise, Idaho.

Resources Inventory Committee (RIC). 1999. British Columbia wildlife habitat rating standards, Version 2.0. Min. of Environ, Lands and Parks, Resource Inventory Branch. Victoria, BC.

Stevens, V. 1995. Database for wildlife diversity in British Columbia; distribution and habitat use of amphibians, reptiles, birds and mammals in biogeoclimatic zones. Res. Br., B.C. Min. For., Hab. Protect. Br., B.C. Environment, Victoria, B.C. Work. Paper 05/1995.

____. 1995. Draft. Species notes (Latest revision). Western Screech-Owl (*Otus kennicottii*). BC Environment, Victoria, B.C.

Western Screech-owl Suitability Map