



The Marbled Murrelet

Biology, Habitat Use and Abundance in Washington



US Fish and Wildlife Service
Spring 2012

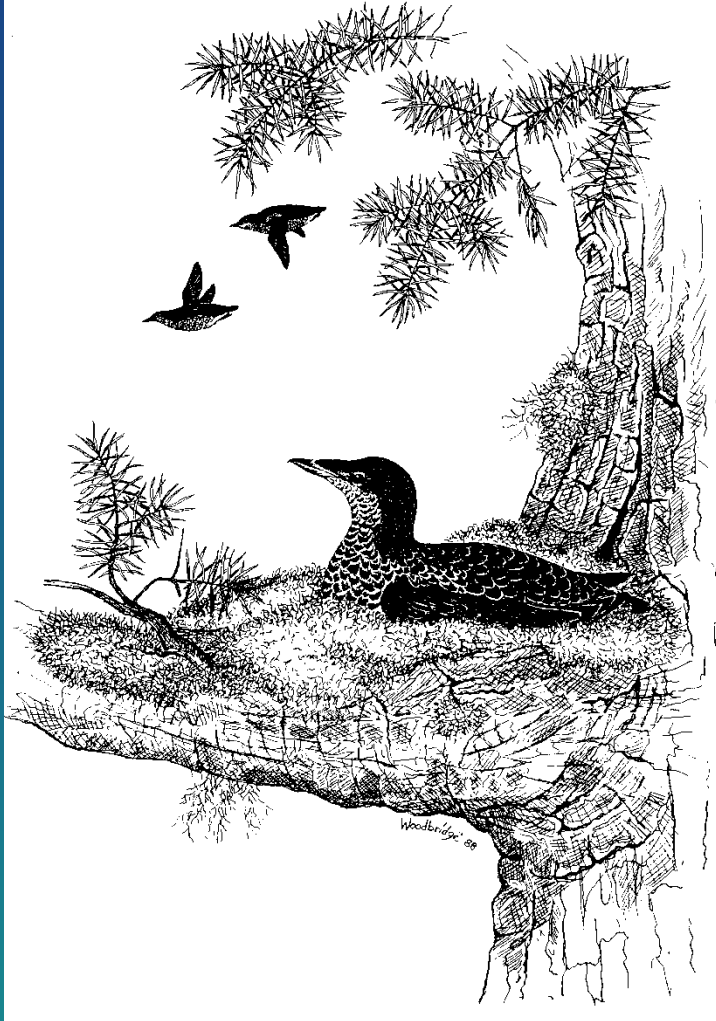
The Marbled Murrelet

Overview

- **Description, Range and Status**
- **Natural History**
- **Habitat Use**
- **Population Assessment**
- **Threats to survival**

Marbled Murrelet

(*Brachyramphus marmoratus*)

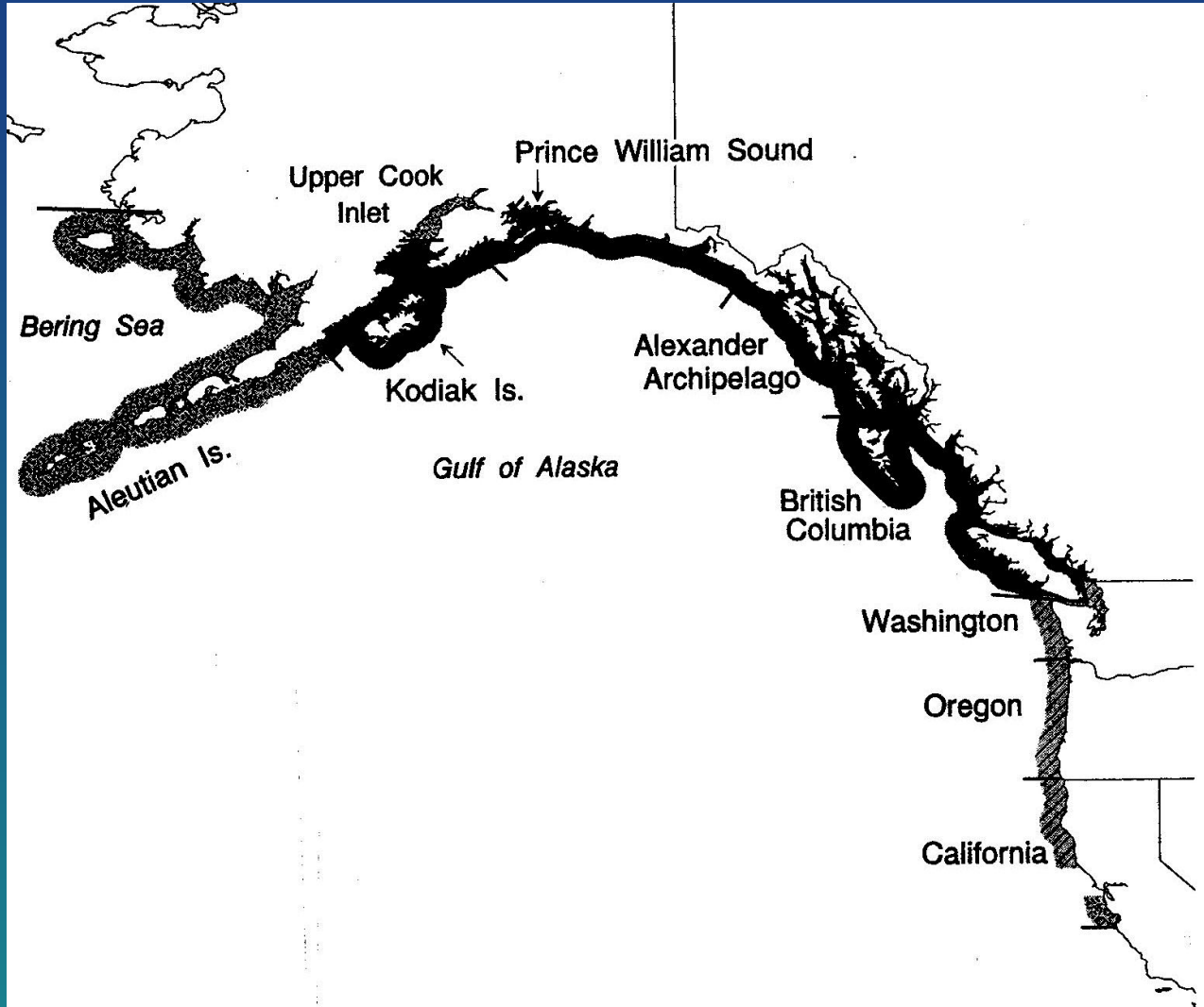


- Family Alcidae (Auks, Murres, Puffins)
- Small seabird that occurs only in w. North America
- Unique among alcids, in most often nests inland in trees

Plumage Characteristics



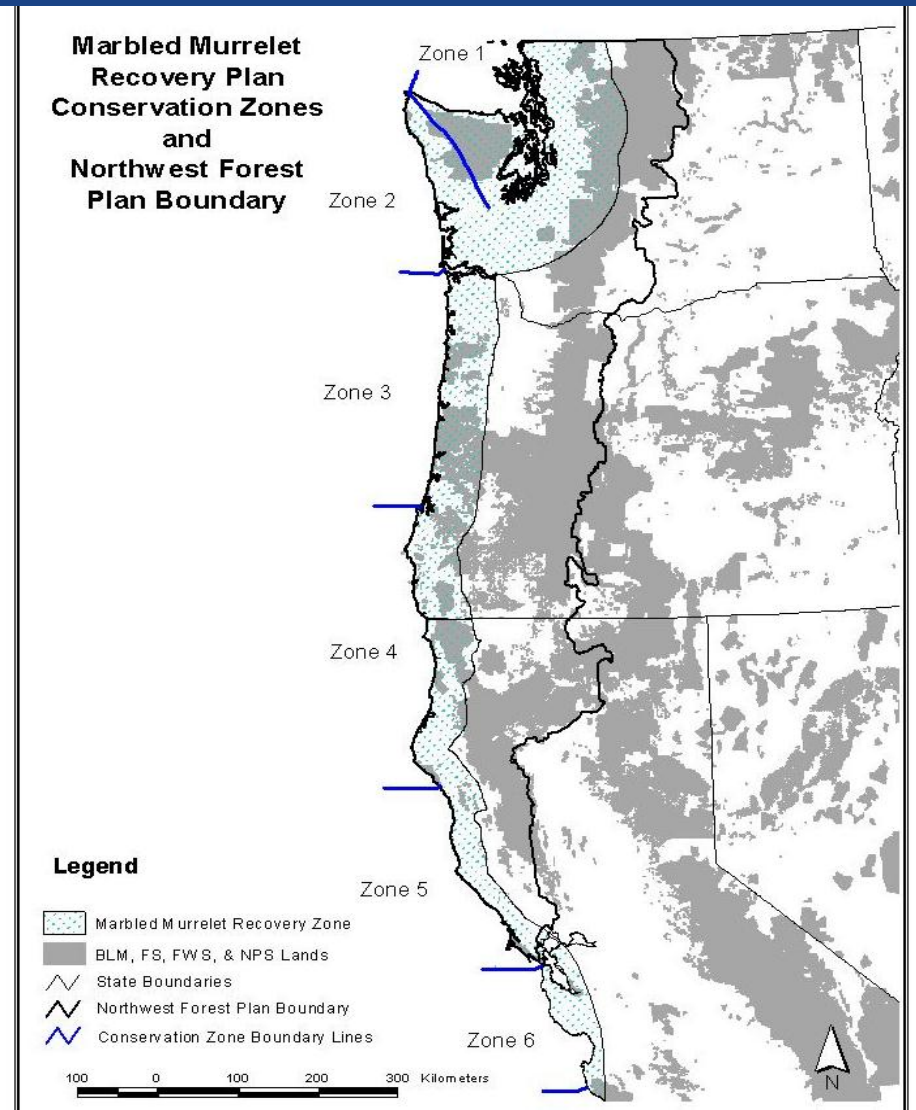
Range of the Marbled Murrelet



Status

Listed as Federally Threatened in Washington, Oregon and California in 1992

- WA, OR, CA “constitute a distinct population segment”
- Primary reason is loss and modification of older forest nesting habitat



Nesting and Reproduction

- Breeding season from late March to mid-Sept.
- Both adults share incubation in 24-hour shifts



Nesting and Reproduction



- Single large egg
- High energy expenditure
- Commute to nest can be >1-2 hours
- May not nest every year

Nesting and Reproduction

- Chick solitary during development for ~30 days
- Chick fledges directly to sea alone



Habitat Use

Unique among seabirds



- Marine environment
 - Forages exclusively at sea
 - Most of time spent there
- Forest
 - Daily flights to inland mature and older forests for nesting and chick rearing



Marine Habitat Use



- Forages near coast, beyond surf to 5 miles
- Primarily small fish
- Small invertebrates
- Nestlings are fed only fish

Nesting Habitat



Evolved to avoid detection by predators (and surveyors!)

- Small
- Mottled dark plumage
- Silent and motionless at nest
- Most landward flights before sunrise and around twilight
- Fast-flying: 50 –70 mph



Trees With Marbled Murrelet Nests in Washington



- Tree diameter 31.5 inches and greater
- Average tree height 150-200 feet
- Dominant and co-dominant positions

Source: WDFW 2003 data and published studies

Forest Habitat Use

Nesting platforms

Conifer tree limbs

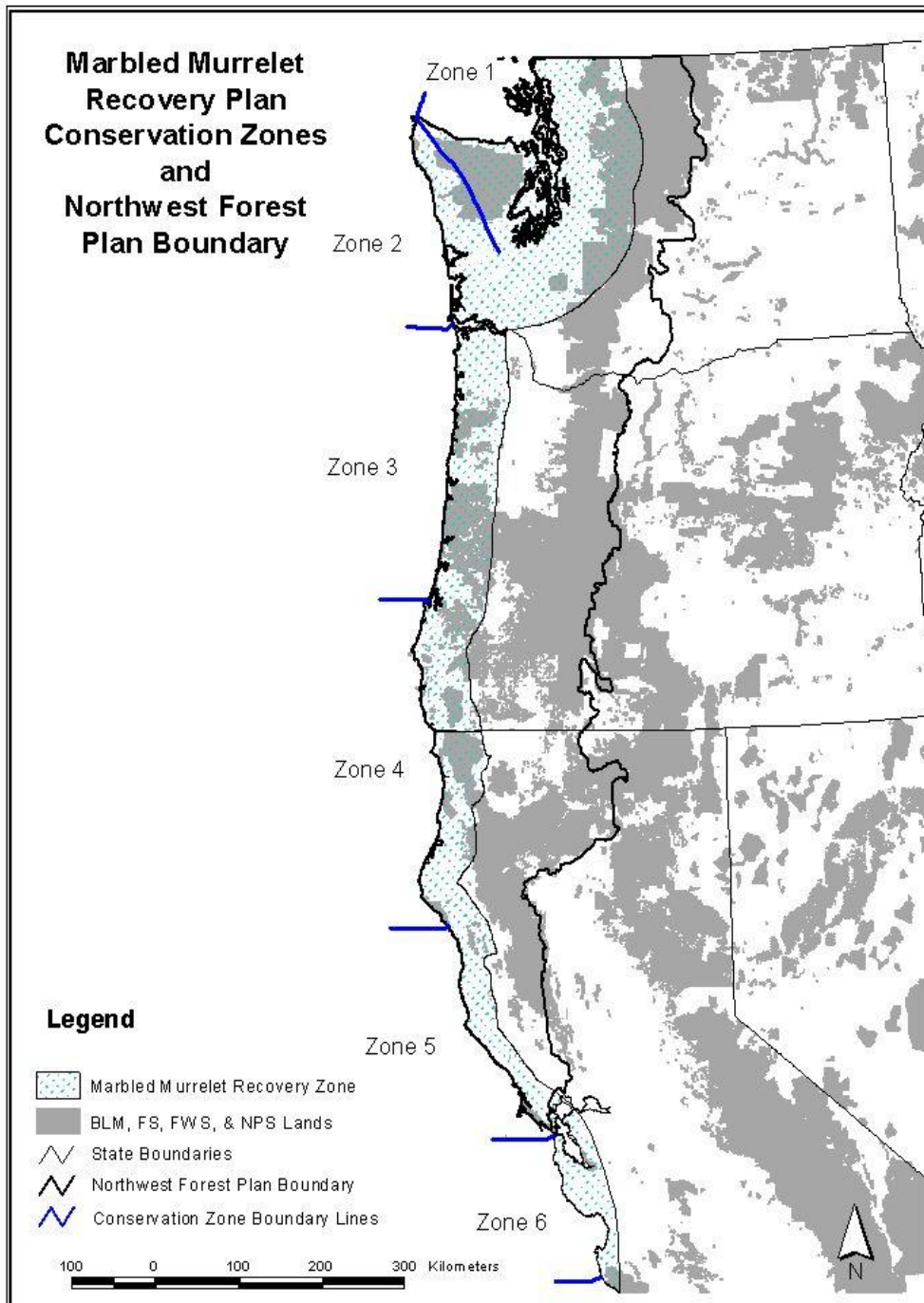
- Moss-covered
- Duff and needle debris
- wide limbs



Assessing Marbled Murrelet Populations

At-sea survey counts





Marine Surveys

- Repeatable transect counts since 2000
- Summarized by Conservation Zone
- Coordinated effort over 3 states
- For Washington (WDFW, USFS, DNR and consultants)

Counting Murrelets at Sea

- Nearshore transects (1.2 - 5 miles)
- 15 May through 31 July
- Breeding birds at sea are likely associated with nearby inland nesting habitat

2011 Population Estimate for Washington

Zone 1: Puget Sound, Hood Canal and Juan de Fuca strait

4393 birds (C I 2689-6367)

Zone 2: WA Outer Coast

1286 birds (C I 650-1946)

WA combined: -7.3% per year (C I -10.3 to -4.2%)

46% decline in murrelet density from 2001- 2010

Threats to reproduction and survival

USFWS Recovery Implementation Team Findings

Draft 2012

Sustained low recruitment to population:

- Ongoing and historic loss of forest nesting habitat
- Predation on murrelet eggs and chicks in their nests
- Changes in marine forage conditions affecting prey abundance, distribution and quality
- Post-fledging mortality
- Cumulative and interactive effects of factors on individuals and populations

Threats to Reproduction and Survival- Habitat Loss

- Status reviews cite past and ongoing habitat loss as the key factor to listing



Threats to Reproduction and Survival

Nest predation



Corvids are primary avian predators

- Jays, crows, ravens



Threats to Reproduction and Survival

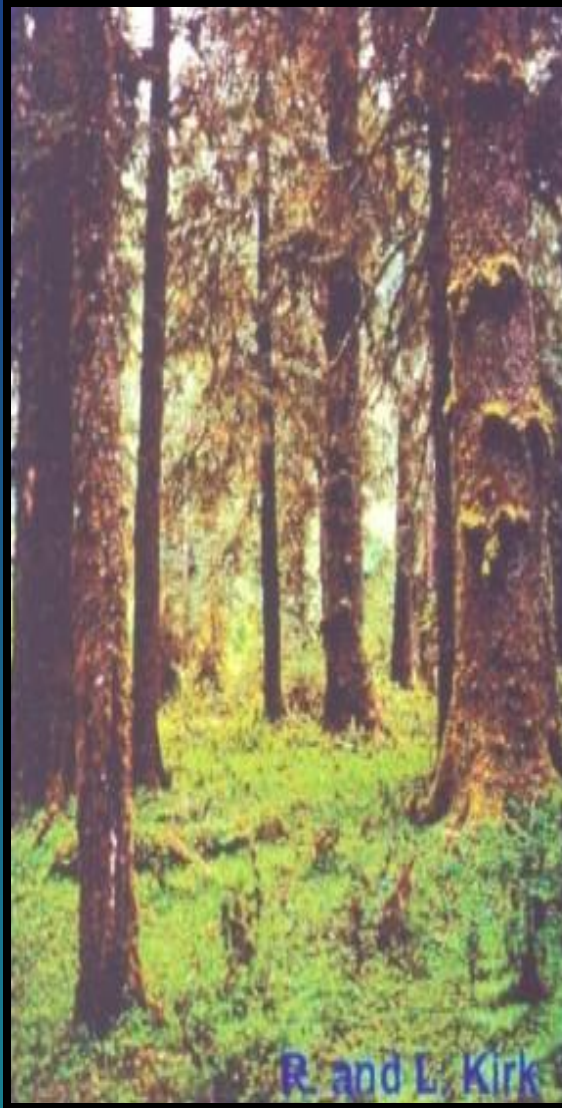
Predation

Other predators-
Hawks, owls, falcons



Small mammals
(artificial nest study)

Predation influenced by:



Forest Structure



Humans



Landscape Matrix

Other Threats to Reproduction and Survival

- Chemical pollution- unpredictable
- Gill-net bycatch
 - 3 live birds in 1344 gillnet sets

Conclusions

- **Unique long-lived species**
- **Continued habitat loss**
- **Low reproductive potential**
- **Declining population trend**
- **Need for continued research and monitoring**
- **Assessment of protective measures**



