

# **Jervis Landscape Unit Marbled Murrelet Habitat Identification Project**

September 18, 2002

## **Purposes**

The purposes of this project were to:

Identify existing Marbled Murrelet habitat within the Jervis LU through airphoto interpretation, with potentially suitable habitat areas confirmed by low-level helicopter observation, then produce a map and report to be used by Ministry staff and licensees in the development of a MAMU management plan for the Jervis Inlet area.

Develop a cost-effective process for identifying MAMU habitat including airphoto identification, mapping and confirmation flights, and pass on this information to Stewart Guy of MWALP for use in future MAMU habitat work.

## **Methodology**

Methodology developed throughout the duration of this project, as unnecessary steps and draft products.

The habitat identification was carried out with the direction to identify and assess quality for all potential habitat regardless of the presence of Category A cutblocks, or THLB status. Category A cutblocks are identified on the maps, with the MAMU habitat for use by the decision makers for determining the management for these areas.

The following steps were carried out for the habitat identification and quality assessment:

### **1) Information Assembly**

The following materials pertaining to the Jervis LU were assembled:

- 1:20,000 forest cover maps (MOF),
- Most current forest development plans for all licensees (MOF), and
- Complete airphoto coverage at approximately 1:20,000 scale (MOF)

### **2) Potential Marbled Murrelet Habitat Identification and Ranking**

Areas were identified and ranked through airphoto interpretation as potentially-suitable MAMU nesting habitat consistent with direction and information provided in the following documents:

Conservation ASSESSMENT OF Marbled Murrelets in British Columbia: review of the biology, populations, habitat associations and conservation of this threatened species by Alan Burger December 21, 2001.

Identified Wildlife Management Strategy Procedures and Measures for Marbled Murrelet: Marbled Murrelet Conservation Assessment 2002, DRAFT Part B Conservation and Management March 28, 2002, by the Marbled Murrelet Recovery Team. including "Further notes to improve part B..." from Alan Burger March 28, 2002

Guidelines for the Use of Air Photo Interpretation as a Tool for the Assessment of Marbled Murrelet Habitat (March 2002 Draft) by Ann Donaldson, RPF of Sterling Wood Group Inc.

Potentially suitable habitat identified on the airphotos was outlined on the forest cover maps, and digitized. Stands for each quality ranking were identified as benchmarks and used in comparison to rank other stands. See disc of scanned airphotos for image of benchmark stands. The habitat quality within each area on the airphotos was ranked and these rankings transferred to the draft map.

### **3) Habitat Confirmation Flights:**

Four flights were required to confirm the suitable MAMU habitat in the Jervis LU. A considerable amount of time was spent collecting stand observations to be used to assist in future MAMU habitat identification work. The first flights, on May 13<sup>th</sup> and June 9<sup>th</sup> were conducted by Dave Dunbar, Alan Burger and Brian Smart. The third flight on June 21<sup>st</sup> included Alan Burger, Stewart Guy and Brian Smart. The fourth flight on August 1<sup>st</sup> was done by Brian Smart. All four flights were with Robin MacGregor of Goldwing Flyte Inc. who also provided high resolution video/audio recording equipment and editing services for the first three flights.

### **4) Habitat Area Amalgamation**

Following ranking, many polygons of potential MAMU habitat areas (PMHA) were amalgamated to form larger units which could be treated as distinct management units. Originally this was done with the unconfirmed polygons. This step was found to be of no value

because changes to the areas following the confirmation flight were so significant. Following habitat confirmation many of the smaller polygons were grouped together to make more manageable units. Each of the amalgamated areas is identified on the map with a habitat area identification number.

### 5) Ranking of MAMU Habitat Areas

The areas were amalgamated by their physical proximity to each other. Most habitat areas include a range of habitat quality, however, there is no physical division between qualities, so the amalgamated areas were assigned an overall ranking as outlined in the table below. Considerations for this ranking included:

Proximity of Cutblocks and THLB: Edge effect of recent cutblocks considered to be 50 m as in the Conservation Assessment Part B. Proximity of THLB is considered for potential future edge effect.

Presence and Density of Nesting Platforms: In the majority of cases this referred to mossy platforms, but in some large Douglas-fir trees the bare branches alone provided a suitable platform. Presence of suitable nesting platforms was the most important factor to consider in the helicopter confirmation flights.

Stand Structure, (vertical complexity and presence of canopy gaps): These attributes allow the access of the MAMU into the nesting platforms and opportunity for the fledgling to exit the stand successfully. Slope, although considered to be a neutral value in the Conservation Assessment, and varied topography, often adds to a stand's vertical complexity and creates canopy gaps and improved platform access.

Large, Tall, Old Trees, Large Branches: Suitable nesting platforms are only found on large branches, which generally do not develop to the appropriate size and do not accumulate a thick enough covering of bryophytes until the tree (stand) is age class 9. The taller the tree the more potential nesting platforms there may be in the stand, and the higher the degree of vertical complexity.

Elevation: Elevation was not used as a habitat ranking criteria itself, however, the presence of mossy platforms dropped off remarkably very close to the 900 m elevation mark. The abundance of mossy platforms decreased with elevation and the decrease was specific to each tree species. Rising with elevation, Abies were first to be bare of moss, then Douglas-fir then Hemlock, while Yellow Cedar had moss most consistently in higher elevations. Western Redcedar had moss up to its natural elevational limit. Many higher elevation stands only had mossy platforms on Yellow Cedar.

Polygon Size: Although habitat quality itself is not dictated by polygon size, the scarcity of large MAMU habitat areas increases their importance for management purposes to ensure all attributes of habitat requirements are met in the landscape.

#### Quality Ranking Classes:

Rank Class	Description
1	All or most favorable attributes present in abundance.
2	All or most favorable attributes present to varying degrees. Many suitable mossy platforms, good stand structure.
3	Most favorable attributes present, in varying degrees. Moderate number of suitable mossy platforms.
4	Some favorable attributes present. Suitable mossy platforms sparse.
Excluded	Few favorable attributes present, no suitable mossy platforms observed.

### MAMU Habitat Identified

#### Area of Confirmed MAMU Habitat:

Habitat Quality Ranking	Area (ha)	# of Polygons	Average Size	Size Range (ha)
1	1644.4	16	102.8	13.1 – 347.8
2	1684.9	39	43.1	4.0 – 144.3
3	1792.0	46	9.0	2.7 – 108.4
4	315.0	14	22.5	5.7 – 76.7
<b>TOTALS</b>	<b>5436.3</b>	<b>115</b>	<b>47.3</b>	<b>2.7 – 347.8</b>

### MAMU Habitat Map, Reports and Images

Produced as part of this report is a map showing the MAMU habitat selected. This map, and the polygons selected is to provide information for ministry and licensee staff in the preparation of a MAMU management plan. A MAMU habitat polygon summary spreadsheet has been produced to accompany the map, with polygon reference numbers, habitat quality ranking and areas shown.

A CD disc has been produced as an appendix to the report which contains scanned airphotos for all the airphoto delineation of potential MAMU habitat. As mentioned above, the quality ranking benchmark stands are also included. Scanned images of the flightlines are also on the disc. Copies of the CD may be obtained from Stewart Guy, MWALP.

### **Airphoto Images**

Scanned images of airphotos and habitat delineation linework have been included on the report CD to illustrate the exact boundaries of the MAMU habitat areas identified. The linework shows the areas delineated as potential MAMU habitat prior to the confirmation flight, which is a record of all stands considered. The linework may help to avoid discrepancies regarding actual boundary locations in the field and on forest cover maps, which are inevitable when converting photo images to map linework. They may be printed, but are not expected to be of high enough quality to assess stand and habitat attributes. Refer to the JPEG images of the Jarvis area flight lines to locate the desired photo.

### **Development of a Cost Effective Process**

Many efficiencies in the process of identifying MAMU habitat were realized throughout the Jarvis project. These advances have been reported back to Stewart Guy of MWALP where they are being compiled with the findings of others doing similar work. This information will be disseminated to all involved in MAMU habitat work to make a more effective process for MAMU habitat identification on the BC Coast.