APPENDIX G:
The Use of Artificial Nest Platforms

The Montana Common Loon Working Group has accumulated a considerable amount of experience using artificial nesting platforms for common loons. Our primary reasons for providing platforms have been: 1) fluctuating water levels flooding or stranding nests, 2) replacing habitat lost by past human development, and 3) lessening shoreline predation and disturbance. For more information on floating platforms as loon nesting structures and our experience on specific lakes, contact an Area Coordinator (Appendix A).

MANAGEMENT CONSIDERATIONS

The use of nesting platforms should not be considered as mitigation for planned destruction of habitat or loss of habitat suitability. Using platforms is labor intensive, can be costly, and has no guarantee of success.

The decision about whether to provide an artificial nest platform involves several factors. To avoid luring loons to nest in inappropriate areas, the area must provide everything needed for successful loon reproduction, such as adequate food, shallow chick-rearing areas, and relative safety from predation and human disturbance. The lake must have supported breeding loons in the past, or loons currently using the lake must either not be breeding, or they are nesting in poor locations (Dolan 1994).

It can be difficult to assess the success of an artificial island because loon nesting success depends on many variables and it may take some time for loons to decide to use a given platform. DeSorbo et al (2007) found that of the platforms used for nesting, only 51% were used the first year. Nesting platforms have also been shown to increase aggressive behavior and reduce territory productivity in common loons (Mager et al. 2008). We have learned by experience that adding a platform to a lake can throw loon society into turmoil, leading to zero production of chicks and adult loons killed by other loons.

CONSTRUCTION OF NESTING PLATFORMS

Key design considerations for loon nest platforms:

- ***Prevent trapping loon adults or chicks in mesh or crevices, but do provide traction.***
- ***Make sure both loon adults and chicks will be able to climb up onto platform.***
- ***Provide overhead cover (i.e. live or dead plants or mesh) to protect from predation.***
- ***Buffer anticipated wave action caused by wind or boats.***
- ***Accommodate water level fluctuations with an adequate anchoring system.***
- ***Anticipate maintenance needs, such as reattachment of mesh or other parts, removal from water for winter, removal of overhead cover for winter (if kept outside in snowy area), and replacement of vegetation on platforms left in place.***

We have used SIMPLE CEDAR LOG STRUCTURES (Figure 1) with success for nesting loons in Western Montana since at least the 1980s. They are relatively inexpensive to build, can be built to a variety of sizes, and it is easy to add wave buffers and avian predator covers (Figure 2).

However, cedar log nesting structures must be maintained to prevent them from trapping young loon chicks or even adults. They are heavy and difficult to handle, especially when water-logged. They fare best if removed every fall for storage or maintenance. Cedar logs left in place beyond the loon nesting season have been crushed on rocks by winds and ice, pulled behind powerboats for sport, and burned for warmth by ice fishermen. See DeSorbo et al. 2008 for materials, costs, and construction details.

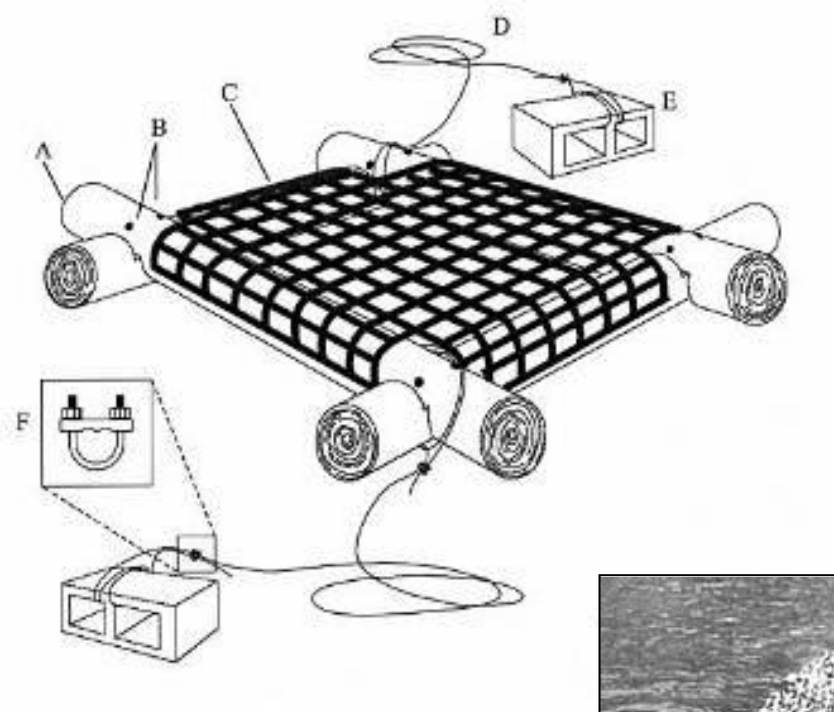


Figure 1. Diagram of a cedar log nesting platform for the common loon. Inset shows cable clamps used to attach cables to anchor blocks. Mesh size of plastic snow fence not to scale (DeSorbo et al. 2008).

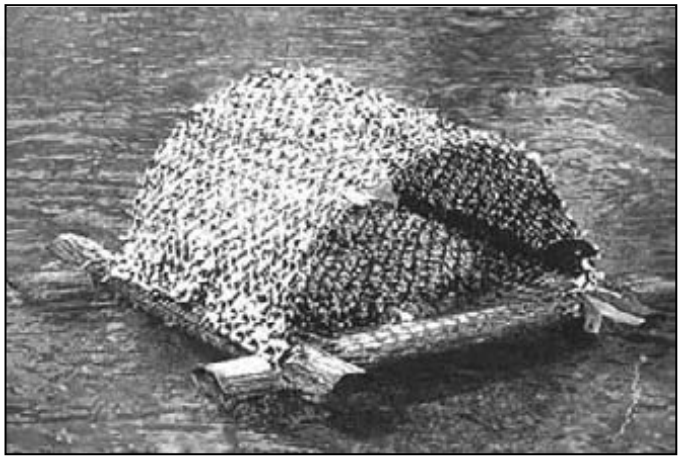
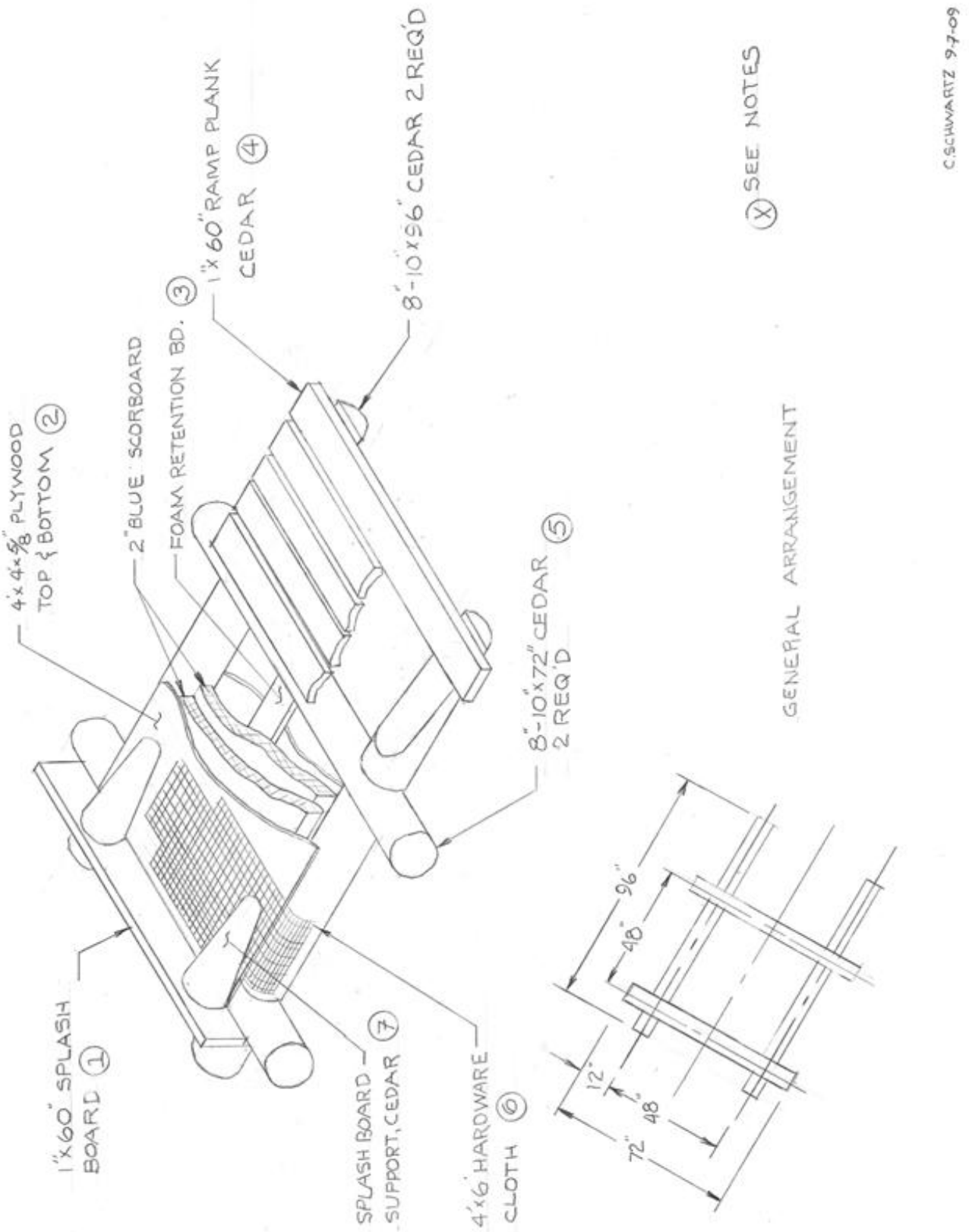


Figure 2. A Common Loon raft on Mooselookmeguntic Lake, Maine. Raft includes optional avian cover to obscure eggs and incubating loons from aerial predators and humans. Photo: Lucas Savoy.

Figure 3. Established overhead cover planted on 2003 Upper Stillwater lake loon nest platform

Dickey Lake area loon volunteer Chuck Schwartz recently designed an improved version of the cedar platform, which we call the SCHWARTZ CADILLAC CEDAR LOG LOON PLATFORM (Figures 4 and 5). This platform features built-in splashboard and access ramp, additional buoyancy and support, and safer mesh. The access ramp helps to provide maximum freeboard without hampering the ability of loons to access the platform. For aesthetic reasons and simplicity, overhead cover can be provided by "planting" willow directly on the platform. Alternatively, the butts of the brush can be inserted into holes drilled for that purpose in the main frame logs and secured with grabber screws.

Figure 4 Schwartz Cadillac Cedar Log Loon Platform with newly planted cover


4'x4'x5/8" PLYWOOD TOP & BOTTOM (2)
2" BLUE SCORBOARD
FOAM RETENTION BD.
1"x60" RAMP PLANK CEDAR (4)
8"-10"x96" CEDAR 2 REQ'D
8"-10"x72" CEDAR 2 REQ'D (5)
1"x60" SPLASH BOARD (1)
SPLASH BOARD SUPPORT, CEDAR (7)
4'x6' HARDWARE CLOTH (6)
(X) SEE NOTES
GENERAL ARRANGEMENT
C.SCHWARTZ 9-7-09
96"
48"
12"
48"
72"

Materials and 2009 Costs for One Schwartz Cadillac Cedar Log Loon Platform

Description	Quantity	Cost (ea.)	Cost (total)
RSS or hot-dipped galvanized lag screws, 3/8 x 10"	8	$3.25	$26.00
RSS or hot-dipped galvanized lag screws, 5/16 x 4"	20	$0.47	$ 9.40
Plywood, CDX, 5/8 x 4' x 8'	1	$18.00	$18.00
Hardware Cloth (1/2" x 1/2" mesh ONLY), 4' x 6'	1	$2.99/ft	$18.00
Blue Scoreboard polystyrene insulation (or other rigid closed-cell foam), 2" x 4' x 8'	1	$30.00	$30.00
Fencing staples, galvanized	as req'd	nominal	
Grabber drywall screws (or galvanized nails or decking screws), 2 1/2'	as req'd	nominal	
Cedar Logs, 8“ x 10” x 72”	4	provided	
Cedar Logs, 8“ x 10” x 96”	2	provided	
TOTAL COST (2009), excluding cedar logs			**$101.40**

Construction Notes for the Schwartz Cadillac Cedar Log Loon Platform (Numbers refer to circled labels on Figure 5):

1) Rip a 6“ cedar log into 1” boards for the splashboard, support board (#3), and ramp planks (#4). Use the widest board for the splashboard (at least 8” wide and 6“ long). Attach this to the supports with two 4" RSS screws on each end. See note #7.
2) Attach plywood sheets, top and bottom, to logs with 2 1/2" grabber screws, 6" o.c.
3) Provide a scrap cedar board to restrain foam board from movement. Usually this will be about 5“ long but its length will depend on the diameter of the cedar logs. Attach with 2 1/2 " grabber screws as required.
4) Rip a 6“ piece of cedar log into 1” x 60” cedar ramp planks. You will need enough planks to cover about 30” of ramp. Attach these to the log frame with two 4" RSS screws on each end. Leave no gaps wide enough for an adult loon or chick to get their feet stuck.
5) Notch cedar logs “Lincoln-log style” to provide a flat surface on topside for installation of plywood sheet. Secure logs with two 3/8" x 10“”“RSS screws at each joint.
6) Attach hardware cloth on top side of platform and wrap around sides. Attach as required with galvanized fencing staples. To prevent injury to birds, wire ends must be trimmed to the cross wires or the ends must be folded under mesh.
7) The angled splashboard support pieces are salvage from ramp formation. Attach supports over plywood sheet into log frame with two 4" RSS screws.

Deployment Notes for Schwartz Cadillac Cedar Log Loon Platform:

-- Provide three concrete blocks for anchors. Two blocks will anchor the end with the splash shield, one block for the ramp end. Attach blocks to platform with rope approximately 3 times as long as the depth of water at the nest site.

-- Position the platform with splashboard facing towards the windward side of lake.

-- For a uniform freeboard, the log mass should be balanced about the longitudinal centerline of the platform. This is affected by log diameters, dryness, and taper, and by placement of nesting materials.

We have also used BIOMIMICRY FLOATING ISLANDS from Floating Islands International (Figure 6 and 7) have also been used with success for nesting loons. These are considerably more expensive to purchase, but have several advantages. They are very lightweight, they look natural and inconspicuous, and they can support enough vegetation to hide a loon and its nest. They also apparently do not require removal and storage every winter.

Figure 6. Layout from above of a Biomimicry floating island (image from Floating Islands International).

Figure 7. 2008 Lower Stillwater Lake loon nest on Biomimicry floating island after hatch. Photo: Laura Holmquist.

In all but the most sheltered locations, the use of Biomimicry floating islands smaller than 36 square feet (3.3 square meters) is not recommended by the Montana CLWG. You can see in Figure 8 that the nesting loon is very exposed to wind and waves on such a small platform, although it did successfully hatch.

Figure 8. Lower Stillwater Lake loon on a 25 ft^2 Biomimicry floating island in the 2008 nesting season. Photo: Laura Holmquist.

PLACEMENT OF NESTING PLATFORMS

It is critical to locate artificial nesting structures properly to avoid further lowering loon nesting success. Placement must be out of prevailing winds and wave action (represented by arrows in lower drawing in Figure 9. Also consider human use patterns and locations of historical nest sites (DeSorbo et al. 2008), as well as the locations of nests and apparent territorial boundaries of other loons on the lake. The area must be at least three feet (1 m) deeper than any expected amount of water level decrease.

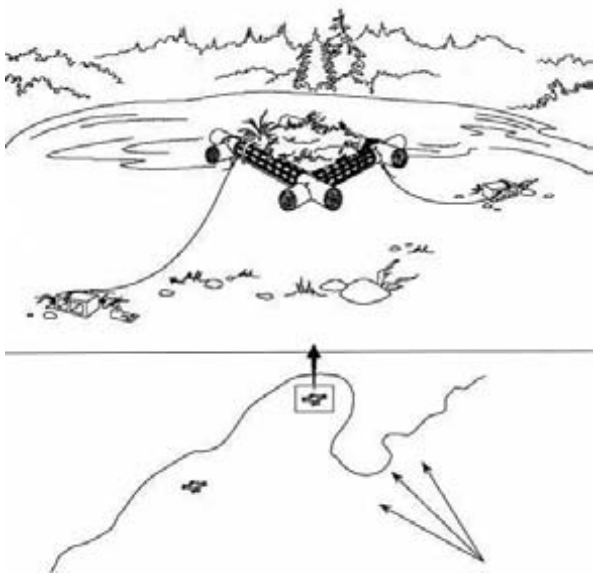


Figure 9. Upper pane represents a cove within a loon territory, displayed from an aerial perspective in lower pane. Lower raft in bottom pane represents a poor choice for placement due to exposure from prevailing winds (DeSorbo et al. 2008).

Carefully selected locations of artificial nest islands can also increase the effectiveness of floating nest area buoy signs (Appendix F), should you decide to use them. For example, a platform intended to create a nesting area in a small bay with a narrow inlet might need only two or three signs to be delineated on an obvious way. Alternatively, platforms can be placed in areas that receive so little human use that signing would not be necessary.

Anchors have been made of cinder blocks, railroad spike tie plates, and various other heavy, indestructible items. Generally, two anchors are used, in line with prevailing winds and waves. Leave enough slack in the line to accommodate water level changes and to allow the platform to adjust to changes in wind direction.

AVOIDING TRANSPORT OF AQUATIC NUISANCE SPECIES

Loon nest platforms and their anchoring materials can also provide habitat for or transport of aquatic nuisance species such as zebra mussels, Eurasian watermilfoil, and whirling disease. The easiest way to avoid further transport of these species is to only use new platforms, ropes, and anchors or ones that have only been used in that specific body of water. Anyone maintaining platforms should be able to identify aquatic nuisance species they may find attached so they can report them to the Montana Aquatic Nuisance Species Coordinator. See the Montana Fish, Wildlife and Parks "Aquatic Nuisance Species--Identification and Distribution" page http://fwp.mt.gov/cms/servlet/fishing/guide/ANS/default.html.

The Montana Common Loon Working Group strongly discourages the transport of a used nesting platform from one body of water to another. If moving a platform is absolutely necessary, it must be thoroughly washed several times to remove all sediment and vegetation, including small roots. High-pressure hot water is best. Let the platform bake in the sun and air out completely for at least a month. Do not reuse a platform taken from any body of water known to have aquatic nuisance species.