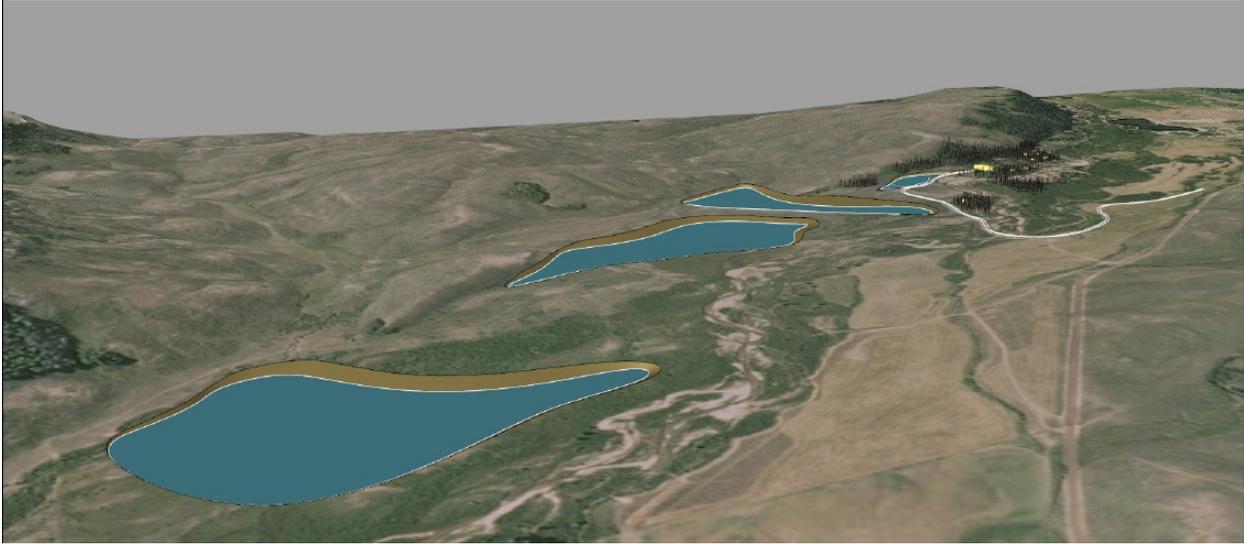


Breeding Birds of Jackson Fork Ranch

Potential list of species with an assessment of lakes created for the Common Loon



A total of 152 species of birds are projected to potentially breed on the Jackson Fork Ranch, Wyoming based on the current known distribution of species defined by the book, "Birds of Wyoming." The proposed creation of lakes and associated emergent wetlands will attract some breeding species that are not now currently present (e.g., Common Loon, Western Grebe, Yellow-headed Blackbird and Marsh Wren) and will increase the population of others that do currently breed on the Ranch (e.g., Trumpeter Swan and Barrow's Goldeneye). The new lake habitats will potentially attract 31 breeding species, while the new wetland habitats will contribute toward increased populations of 13 species (see Table 1).

ASSESSMET OF PROPOSED COMMON LOON PROPOSED LAKES

The creation of multiple lakes for the Common Loon on the Jackson Fork Ranch is the current proposed approach. Per a conceptual schematic by OLIN: Landscape Architecture and Urban Design (Philadelphia, Pennsylvania), four lakes are proposed of various sizes: 3, 12, 20 and 23 acres for a total of approximately 60 acres of surface water (Figure 1). Only the larger two lakes are suitable for regular use by loons. There are several advantages of multiple lakes over one larger lake, including: (1) the ability to create lakes of suitable size that can physically fit within the Ranch landscape in a natural way (i.e., without large dams), (2) the increased circulation of water among the lakes which will provide a greater ability to retain aerobic conditions, (3) more spawning habitat for cutthroat trout, and (4) greater shoreline acreage of wetland habitat that will both increase lake productivity and wildlife abundance.

To best enhance these four attributes to their greatest extent the following is recommended:

1. Increase the size of the largest two lakes to more closely reach 25 acres;
2. Create the bathymetry of the largest two lakes where the deepest areas are 12-15 feet deep and where these areas are also helping create a current through the lake;

3. Insure that the connecting creeks are highly suitable for spawning cutthroat trout as well as ease of passage for fish among the largest of the three waterbodies, and;
4. Create shoreline wetland habitat at the water's edge (e.g., bulrushes) and around the lakes to the greatest extent possible (e.g., sedges). The creation of sedge meadow as extensive as possible among the lakes should be a high priority. Cattails are also recommended and encouraged by the Wyoming Game and Fish Department's Nongame Program.

The associated wetlands will become critical habitat for producing aquatic invertebrates and therefore prey fish and birds of interest. The proposed creation of multiple lakes for a breeding pair of Common loons at Jackson Fork Ranch is similar to a grouping of five lakes in Yellowstone National Park – the Cygnet Lakes. These lakes are currently occupied by a pair of loons that regularly produce chicks. The Cygnet Lakes are small and isolated from other lakes (i.e., loons are not traveling to lakes other than the Cygnet Lakes to forage). For comparison purpose, the Cygnet Lakes have been added as an image to an area on the Jackson Fork Ranch in the general area of the planned creation of four lakes (Figure 2). The largest one (26 acres) is the known nesting lake and is the primarily one used based on observations (potentially, the only one used). The Cygnet Lakes are a good example of how a group of small and isolated lakes provide suitable habitat for loon families in Wyoming and how such lakes can be expected to be used by a pair of breeding loons on the Jackson Fork Ranch.

Further evidence of potential use by summering loons is the observation of a Common Loon on 13-16 May, 2014 on a 10 acre lake currently at the Jackson Fork Ranch.

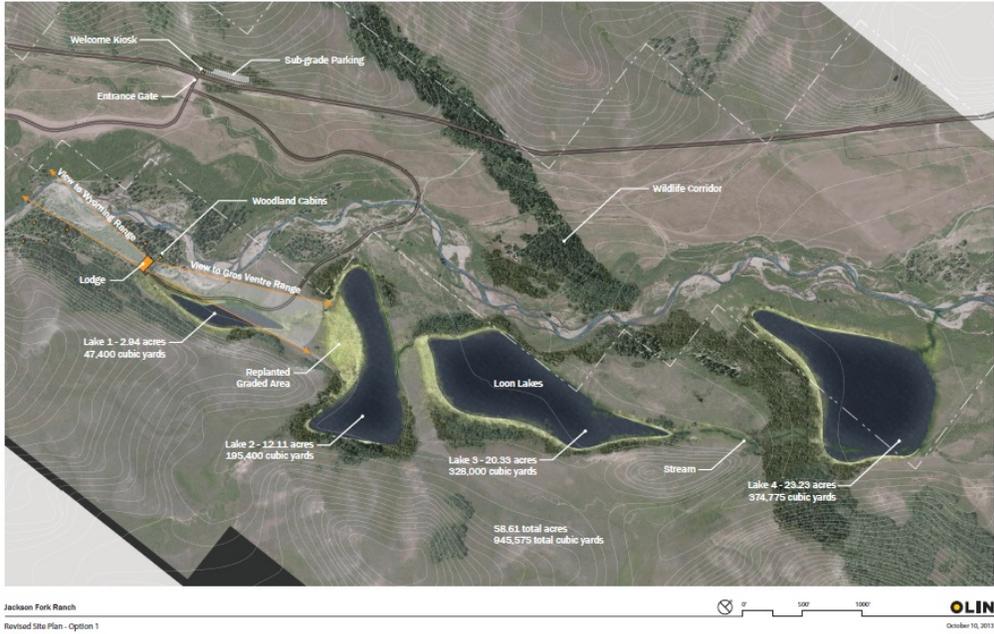


Figure 1. OLIN conceptual approach for creating lakes for a breeding pair of loons at Jackson Fork Ranch.

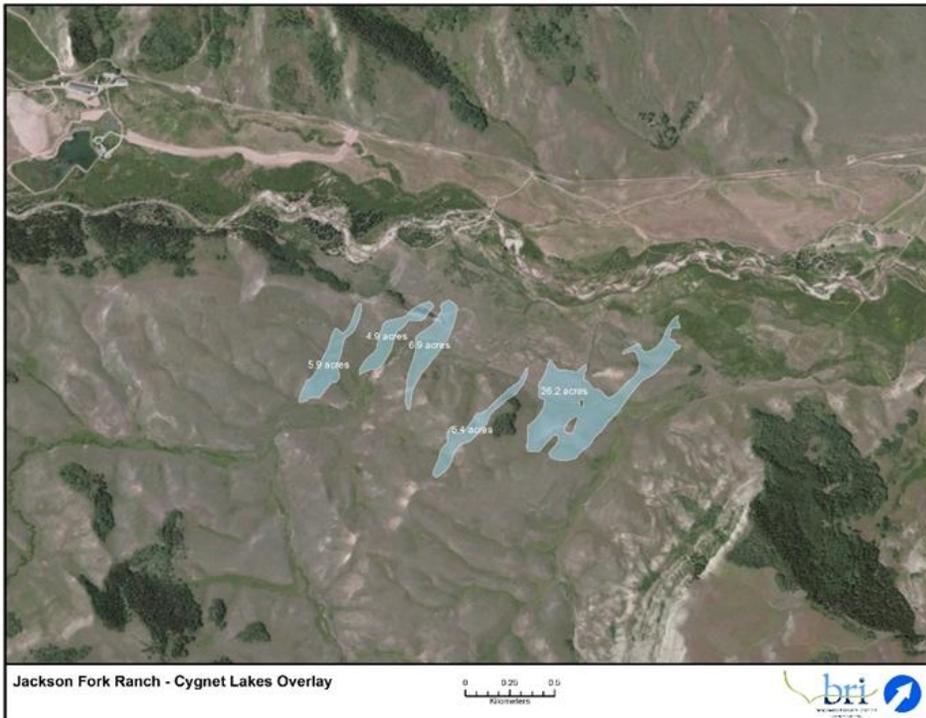


Figure 2. Conceptual placement of the Cygnet Lakes from Yellowstone National Park at the Jackson Fork Ranch – the lake with 26.2 acres is the lake with a nesting loon pair and is the one primarily used.

Table 1. List of potential and known breeding species on Jackson Fork Ranch, Wyoming (Based on the book "Birds of Wyoming" and on-site observations). Species of greatest management interest are in **Yellow**.

Species	Observed (X) and Breeding Evidence (B)	Assumed Present	Likely increased numbers / presence with creation of lake habitat	Likely increased numbers / presence with creation of emergent wetlands	Attracted to feeders (supplemental food)	Attracted to constructed nest structures
Canada Goose	X, B		X		X	X
Trumpeter Swan	X, B		X			
Gadwall	X		X			
American Wigeon		X	X			
Mallard	X		X			X
Blue-winged Teal		X	X			
Cinnamon Teal	X		X			
Northern Shoveler		X	X			
Northern Pintail		X	X			
Green-winged Teal	X		X			
Canvasback			X			
Redhead			X			
Ring-necked Duck	X		X			
Lesser Scaup			X			
Barrow's Goldeneye	X, B		X			X
Common Merganser	X		X			X
Ruddy Duck		X	X			
Ruffed Grouse		X				
Greater Sage Grouse		X				
Dusky Grouse	X					
Common Loon	X		X			X
Pied-billed Grebe			X			
Horned Grebe			X			
Western Grebe			X			X
Great Blue Heron			X			X
Turkey Vulture	X					
Osprey			X			X
Bald Eagle	X		X			
Northern Harrier	X					
Sharp-shinned Hawk		X				
Cooper's Hawk		X				
Northern Goshawk		X				
Swainson's Hawk	X					
Red-tailed Hawk	X					
Ferruginous Hawk		X				
Golden Eagle		X				
American Kestrel	X					X
Peregrine Falcon		X				
Prairie Falcon		X				
Virginia Rail				X		
Sora				X		
Sandhill Crane	X, B			X	X	
Killdeer	X, B		X			
American Avocet				X		

Species	Observed	Assumed Present	Likely and/or potentially attracted with creation of lake habitat	Likely and/or potentially attracted with creation of emergent wetlands	Attracted to feeders (supplementary food)	Attracted to constructed nest structures
Spotted Sandpiper	X		X			
Long-billed Curlew	X, B					
Wilson's Snipe	X, B			X		
Wilson's Phalarope			X	X		
Rock Pigeon	X				X	
Eurasian Collared Dove		X			X	
Mourning Dove	X				X	
Great Horned Owl		X				X
Great Gray Owl		X				X
Northern Pygmy-Owl		X				X
Long-eared Owl		X				
Short-eared Owl		X				
Northern Saw-whet Owl		X				X
Common Nighthawk		X				
Common Poorwill		X				
White-throated Swift		X				
Calliope Hummingbird		X			X	
Broad-tailed Hummingbird		X			X	
Belted Kingfisher		X	X			
Williamson's Sapsucker		X				
Red-naped Sapsucker	X					
Downy Woodpecker		X			X	
Hairy Woodpecker		X			X	
American Three-toed Woodpecker		X				
Northern Flicker	X					X
Olive-sided Flycatcher		X				
Western Wood-Pewee		X				
Willow Flycatcher		X				
Hammond's Flycatcher		X				
Dusky Flycatcher		X				
Cordilleran Flycatcher		X				
Say's Phoebe		X				X
Western Kingbird		X				
Eastern Kingbird		X				
Loggerhead Shrike		X				
Warbling Vireo		X				
Gray Jay		X			X	
Stellar's Jay		X			X	
Clark's Nutcracker		X				
Black-billed Magpie	X					
American Crow	X					
Common Raven	X					
Horned Lark		X				
Tree Swallow	X, B		X			X
Violet-green Swallow	X		X			X
Northern Rough-winged Swallow		X	X			
Bank Swallow		X	X			

Species	Observed	Assumed Present	Likely and/or potentially attracted with creation of lake habitat	Likely and/or potentially attracted with creation of emergent wetlands	Attracted to feeders (supplementary food)	Attracted to constructed nest structures
Cliff Swallow	X, B					X
Barn Swallow		X				X
Mountain Chickadee		X			X	X
Black-capped Chickadee	X				X	X
Red-breasted Nuthatch		X			X	
White-breasted Nuthatch		X			X	
Brown Creeper		X				
Rock Wren		X				
Canyon Wren		X				
House Wren		X				X
Marsh Wren				X		
American Dipper		X				
Golden-crowned Kinglet		X				
Ruby-crowned Kinglet	X					
Mountain Bluebird	X, B					X
Townsend's Solitaire		X				
Veery		X				
Swainson's Thrush		X				
Hermit Thrush		X				
American Robin	X					
Gray Catbird		X				
Sage Thrasher		X				
Cedar Waxwing	X					
Orange-crowned Warbler		X				
Yellow Warbler		X		X		
Yellow-rumped Warbler		X				
MacGillvray's Warbler	X					
Common Yellowthroat		X		X		
Wilson's Warbler	X					
Western Tanager		X				
Green-tailed Towhee		X				
Chipping Sparrow		X				
Brewer's Sparrow		X				
Vesper Sparrow		X				
Lark Sparrow		X			X	
Sage Sparrow		X				
Lark Bunting		X				
Savannah Sparrow	X					
Fox Sparrow	X				X	
Song Sparrow	X, B			X	X	
Lincoln's Sparrow		X			X	
White-crowned Sparrow	X				X	
Dark-eyed Junco	X				X	
Black-headed Grosbeak		X				
Lazuli Bunting		X				
Red-winged Blackbird		X		X		
Western Meadowlark		X				
Yellow-headed Blackbird				X		
Brewer's Blackbird	X				X	
Common Grackle		X			X	

Species	Observed	Assumed Present	Likely and/or potentially attracted with creation of lake habitat	Likely and/or potentially attracted with creation of emergent wetlands	Attracted to feeders (supplementary food)	Attracted to constructed nest structures
Brown-headed Cowbird	X				X	
Bullock's Oriole		X			X	
Pine Grosbeak		X			X	
Cassin's Finch	X				X	
House Finch		X			X	X
Red Crossbill	X					
White-winged Crossbill		X				
Pine Siskin	X				X	
American Goldfinch	X				X	
Evening Grosbeak		X			X	
House Sparrow		X			X	X