



# Wetlands Working Group

The Wildlife Society

Newsletter, Volume 6, Issue 2  
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## Celebrating 100 Years of Migratory Bird Conservation

### Part 2: United States

*To honor the 100th anniversary of the Migratory Bird Treaty, this year's WWG newsletters will highlight wetlands of international importance across North America!*

**The Migratory Bird Treaty in the United States** was enacted with the passage of the Migratory Bird Treaty Act (MBTA) passed by Congress during 1918 following the decimation of bird populations nationwide. Great auks and Labrador ducks were extinct by the end of the 1800s, with other species to follow. The MBTA officially made it a crime to "pursue, hunt, take, capture, kill," or "sell" a migratory bird or any of its parts, including nests, eggs, and feathers without a valid permit. Controversial, the MBTA was soon challenged, but was upheld in a 1920 Supreme Court decision.

The MBTA has evolved over time to adapt to changing conservation issues. It has expanded its geographic area (via treaties with Japan and Russia) and the scope of its coverage. During 1962 it was updated to address how Native American tribes can collect feathers from protected birds for religious ceremonies. The Migratory Bird Treaty Reform Act of 2004 (MBTRA) included protection of all avian species native to the United States or its territories ([click here for a list of species](#)).

The feature article in this newsletter explores the diverse wetlands within the U.S. Intermountain West region. It emphasizes the importance of regional, international, and hemispheric wetland conservation through three species of migratory birds: Wilson's phalaropes; tundra swans; and lesser scaup.

Thank you to all of the WWG members for your contribution to management, conservation, and research of wetlands that preserve these important international connections for migratory birds and other wildlife! We hope you enjoy this 2nd part of our series featuring international wetlands and bird conservation!

First signed by the United States and Great Britain (on behalf of Canada) during 1916, the Migratory Bird Treaty protects birds that migrate across international borders. Mexico signed the treaty during 1936.

# Wetland Connections of the Intermountain West

by Josh Vest, Intermountain West Joint Venture,  
Adonia Henry, Scaup & Willet LLC, &  
Jeff Warren, U.S. Fish and Wildlife Service

**The Intermountain West** is an extensive and incredibly diverse region. In the United States it generally extends between the Rocky Mountains on the East to the Sierra Nevadas and Cascades on the West bordering both Canada and Mexico (Figure 1). In all, the Intermountain West Region encompasses over 25% of the United States and is an iconic feature in American history and culture. The region is defined by mountain ranges, intermountain valleys and basins where ecotypes and wildlife habitats vary dramatically along elevation gradients. Much of the Intermountain West is generally characterized as North American Desert Biome (58%) and water scarcity is a defining feature (CEC 1997). Consequently, the availability and distribution of water are keys to healthy wildlife populations and human land-use patterns.

**Wetlands and Aquatic Habitats** of the Intermountain West are diverse due to its varied topography and climate. General wetland types range from intermountain basin marshes, wet meadows, playas and salt flats to riparian floodplains, montane marshes, and even high-elevation peatlands. The greatest abundance of water and wetlands typically occurs at mid-elevations due to increased water availability from higher annual precipitation and cooler mountain temperatures in contrast to arid lowlands. However, intermountain basins and valleys support large wetland complexes due to their level topography and runoff provided by adjacent mountains (Cooper et al. 2012). Many watersheds in the Great Basin and Southern Rockies include terminal basins which concentrate salt loads and create some of the most distinctive landscapes in the region such as salt flats and saline lakes like Great Salt Lake, Mono Lake, and Lake Abert.

Wetland systems in the Intermountain West are largely driven by accumulating winter snowpack and groundwater dynamics. Snowfall and stream flows vary widely within and between years. High evaporation rates in many areas result in seasonal and ephemeral wetland patterns. These characteristics sustain exceptionally dynamic wetland cycles that exhibit high temporal and spatial variability across the



Figure 1. Intermountain West ecoregion of the U.S.

Intermountain West. When favorable environmental conditions occur biological productivity is remarkable (Kadlec and Smith 1989, McKinstry 2004). Wetland systems (including riparian habitats) are therefore among the region's most important natural resources due to their biological, economical, and social values.

Compared to other regions of North America wetland abundance is relatively low. Historical (1870s) estimates suggest only 8% of all wetland acres in the lower 48 states occurred in the Western United States (Dahl 1990). Wetlands occupy less than 10% of the Intermountain West but occur throughout the entire region (Donnelly and Vest 2012). Despite their low abundance, wetlands here serve a critical role in sustaining wildlife and human populations. The rarity of wetlands in a dry system adds to their value (Kadlec and Smith 1989). Wetlands help drive ecosystem form and function, and they structure biotic communities far beyond their areal extent (McKinstry 2004). Over 80% of all wildlife in the region relies on wetlands during some portion of their annual life cycle. For example,



Wetlands at North Park, Colorado. Photo courtesy of IWJV.

## Wetland Connections of the Intermountain West (continued from page 2)

wetland habitats are important in structuring sage-grouse population abundance and distribution across their range (Donnelly et al. 2016)

Early settlement patterns in the west were strongly associated with the limited water supplies needed to develop agricultural, grazing, and mining operations (Lovvorn and Hart 2004, Leu et al. 2008). As a result, approximately 70% of emergent wetlands, as classified by NWI, occur on private lands despite over 60% of the Intermountain West's surface area being in some form of public ownership. Many of these private wetlands persist due to irrigated agriculture, commonly in association with hay production or grazing pastures. Although agricultural irrigation has influenced the hydrology of many wetlands throughout the region, the practice of flood-irrigation often mimics natural floodplain processes associated with spring runoff. These working wetlands provide important wildlife habitat and socioeconomic value across the region but are frequently undervalued, especially as water conservation is an emphasis by public and private stakeholders. However, understanding of the importance of flood-irrigated habitats and working wetlands is growing (Lovvorn and Hart 2004, Petrie et al. 2013, Blevins 2015).



*Migrating swans at Great Salt Lake wetlands, Utah. Photo by Don Paul.*

Many important wetland complexes, and some of the best known, occur in public management including state wildlife management areas and federal national wildlife refuges. These areas were frequently established due to their importance for migratory birds. Throughout the region they serve as critical biological anchors for wetland dependent wildlife. These managed wetlands are located across a range of elevations and diverse geomorphic landforms. Although these wetlands may be protected and managed for the benefit of wildlife their long-term viability is inextricably linked to water-use patterns in their watersheds (Downard et al. 2014).

**Wetland Connections** - Spectacular concentrations of waterbirds occur annually at wetland complexes throughout the Intermountain West. The region provides critical breeding habitat for a variety of waterbirds including cinnamon teal, black-necked stilts, white-faced ibis, and greater sandhill cranes to name a few. However, from a continental perspective, the regions greatest contribution lies in providing migration and staging habitats for more than ten million wetland birds moving between breeding and wintering areas in North America and beyond. For example, 30% of all northern pintail, over half of all Wilson's phalaropes, and long-billed dowitchers, and nearly 90% of eared grebes and American avocets migrate through the Intermountain West annually.

Migration routes of tundra swans provide a useful example of migratory connectivity for birds relying on permanent and semipermanent wetlands in the northern half of the Intermountain West as they migrate between breeding areas in Alaska and wintering areas in California (Figure 2). Throughout this circuitous journey they rely on a suite of public and private wetlands to fuel their migration.

*Continued on page 5*

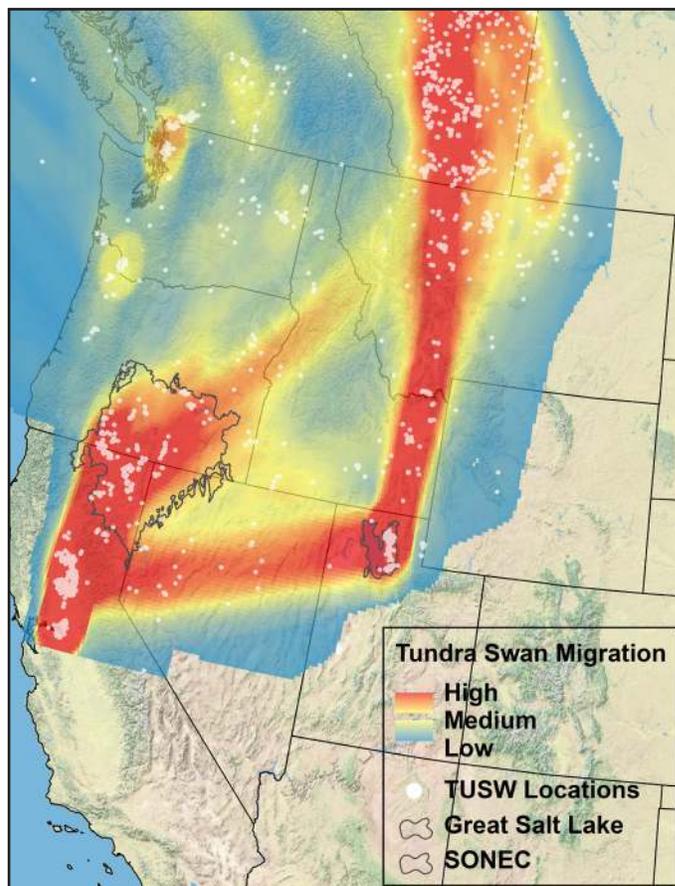
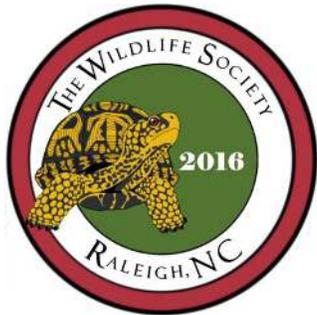


Figure 2. Tundra swan locations and migration concentrations.

# Join us at the 2016 TWS Annual Conference!



*The Wildlife Society*  
**23rd Annual Conference**

**15-19 October 2016**  
<http://www.twsconference.org>

## WWG Annual Meeting

**Tues., October 18th, 1:30-3:00pm**  
**Room RCC 402**  
**“Bring A Friend”**

Please consider attending and bringing a friend to increase participation in the WWG. We will discuss results of the member survey, announce the winner of the student travel award, and plan activities for the upcoming year.

**We will raffle off a matted and framed migratory waterbird photograph!**

Everyone attending the WWG meeting will be entered into the raffle and the drawing will be made at the end of the meeting.

## Send Us Your Photos!!

Show TWS members and prospective WWG members where you work! We'll display photos of members and wetland where you work at the WWG Exhibitor Booth during the 2016 conference!

Send high quality image files to:  
[www.tws@gmail.com](mailto:www.tws@gmail.com)

*Visit Us at  
the WWG  
Exhibitor Booth  
during the 2016  
Conference!*

With the theme of increasing our membership during 2016, we will have an exhibitor booth during the conference. Stop by to meet other members and encourage friends to join.

**Support the WWG with  
your purchase of a reusable  
Chico bag, only \$10.**

**New members who join during the  
conference get a 50% discount.**



## Wetlands in the News

**Restoring 1 Billion Liters of Water**  
USFS and Coca-Cola partner to protect and restore damaged watersheds.

**Yosemite National Park**  
Expands by 400 acres to protect habitat for wetland-dependent wildlife.

**Fighting Web-Trafficking of Aquatic Invasive Species**  
Using advanced technologies.

**Muskegon County, MI**  
purchases 100 acres for wetland restoration.

**Bolsa Chica Wetlands, CA**  
Celebrates 10 years of restored tidal flow.

**First International Mangrove Day**  
celebrated around the world on July 26th.

**International Waterbird Census Turns 50**  
Celebrating at one of Argentina's most important wetlands.

**Hugh Boyd**  
A pioneer of waterbird science and conservation, passes away at 91.



Click on the [light blue](#) hyperlinked text above for links to the original articles.

## Wetland Connections of the Intermountain West (continued from page 3)

The Intermountain West also provides breeding habitats for a variety of wetland birds that then move across the North American Flyways during fall, winter, and spring. For example, the Centennial Valley of southwestern Montana hosts one of the highest breeding densities of lesser scaup in North America. Breeding lesser scaup banded there have been recovered from as far away as Mexico, Illinois, and North Carolina (Figure 3).

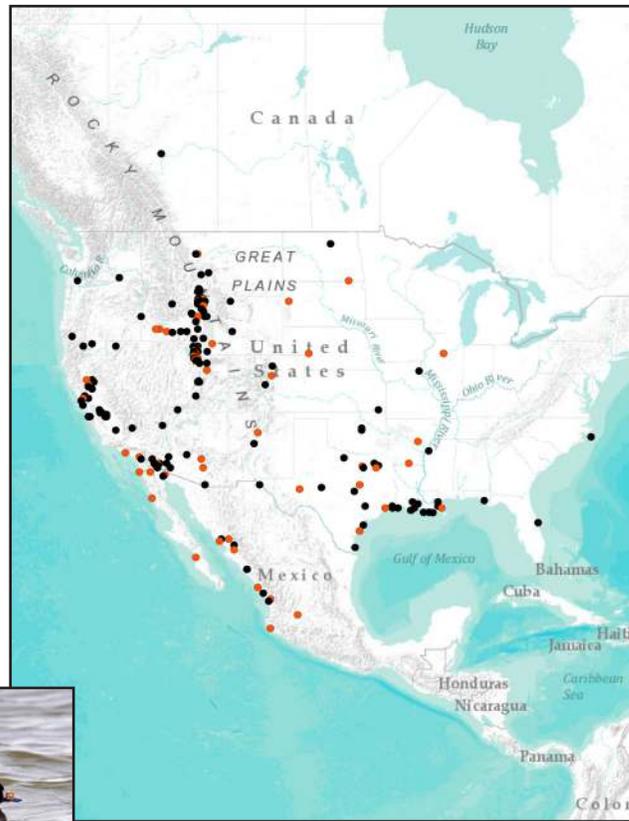


Figure 3. Band recoveries of adult (orange dots) and juvenile (black dots) lesser scaup banded at Red Rock Lakes National Wildlife Refuge, Montana.

Wilson's phalaropes provide a striking example of the hemispheric importance wetlands and aquatic habitats of the Intermountain West play. They breed throughout the Prairie Pothole, Great Plains, and Intermountain West regions of North America in wet meadow and other shallow emergent wetlands. During late summer, large portions of the population begin funneling through intermountain valleys and basins and stage mainly at saline lakes and associated wetland complexes such as the Great Salt Lake. Here, they double their body weights in preparation for an epic migration to South America where most will spend the winter in the Andes.

Wetlands and saline resources of the Intermountain West are therefore pivotal to sustaining these and other shorebird populations in the western hemisphere.



Wetlands and aquatic habitats of the Intermountain West are undoubtedly critical links for birds across the continent and beyond. Collectively, they provide a diverse network that migratory birds depend on to

complete their epic journeys every year. However, wetlands in this region can vary dramatically from year to year in both availability and their productivity due to seasonal and annual variation in above and below ground hydrological inputs. Some wetlands here may be dry more often than wet. 'Average wetland condition' is a misnomer for these landscapes defined by high temporal and spatial variability. Therefore, sustaining a network of functional wetlands across the region is critical to sustaining migratory bird populations through wet and dry cycles. This network is even more critical for species relying on temporary or seasonal wetlands in order to provide resilient migratory pathways (Haig et al. 1998).

**Wetland Trends and Threats** - Accurate assessments of wetland loss in the Intermountain West remain elusive. Up to half of wetlands in the 11 western intermountain states may have been lost with estimates ranging from 30 to 90%. Historically, considerable loss of wetlands likely occurred from exhaustive removal of beaver from throughout the Intermountain West during early Anglo-American fur trapping and exploration. However, the major impact on wetland and riparian areas has been from the development and depletion of water resources for energy, agricultural, industrial, and domestic uses which began in earnest with the passage of the Federal Reclamation Act in 1902 (McKinstry 2004). Large water projects in the west that were intended to stimulate expansion of agricultural industries had tremendous impacts on wetland systems. Damming and diversion of streams and rivers has reduced or stabilized historic discharge rates and attenuated peak runoff periods to benefit downstream irrigation needs.

Wetland systems in lower elevations generally sustain higher biological diversity and densities of wildlife. However, lower elevations contain denser human

# Wetland Connections of the Intermountain West (continued from page 5)

populations, more agriculture, and have a higher potential for future energy and rural development, and climate change impacts. Essentially all lower elevation wetlands have been modified to some extent and they generally have lower wetland condition and higher vulnerability scores. Combined, these factors make effective conservation challenging (Copeland et al. 2010).

The Intermountain West has experienced one of the fastest population growth rates in the United States over the past several decades. The 'Old' West was dominated by ranching economies and extractive industries such as logging and mining. The 'New' West has been born from rapid urban and rural growth resulting in substantial land-use, socioeconomic, and cultural changes. Ranches are increasingly converted to ranchettes, water conflicts continue to escalate, and wildlife and humans are both adapting to changing climate and hydrologic patterns. Increasing competition for scarce water resources will invariably be the defining wetland conservation challenge for the region. Intensified and wide-spread emphasis for increased water use efficiency will likely have impacts on irrigated agriculture and wetlands.

**Conservation Approaches** - For wetlands in public management, increasing pressures on scarce water resources will undoubtedly necessitate adaptive management approaches by agencies and other wetland managers that incorporate larger social-ecological systems (Downard et al. 2014). Strictly focusing on water management within wetland complexes may not be as effective as they were historically. Adopting

strategies where research and management are explicitly linked to address ecological and social uncertainty offers a more effective approach to solve complex problems managers face (McKinstry 2004).

Protecting and restoring wetlands on private lands remains important but opportunities are relatively limited because most emergent wetlands here are vital to ranching economies. A working lands approach toward wetland conservation offers new opportunities to sustain important wetland functions that migratory birds and other wildlife depend on. Collaborative and incentive based approaches that reward ranchers who provide vital habitat for wetland wildlife provides opportunities for "win-win" conservation in a region often marred by water and other natural resource conflicts. USDA Farm Bill programs will undoubtedly play a central role in maintaining the important wetland connections for wildlife in the Intermountain West.

Increasing energy, rural, and water developments in the region will continue to put wetland resources at risk. Wetland mitigation practices will therefore continue to be an important conservation tool. However, traditional approaches to wetland mitigation have largely not considered landscape context in preserving wetland functions. Policies which encourage compensatory mitigation at watershed or ecoregional scales will be important to addressing such challenges (McKinney and Kiesecker 2009, Copeland et al. 2010) (see page 8 for literature cited).



*Caribou-Targhee National Forest, Idaho (left); Summer Lake Wildlife Area, Oregon (middle); Grays Lake National Wildlife Refuge, Idaho (right); and pre-breeding white-faced ibis in the Intermountain West, April 2011 (bottom).*



## State of North America's Birds 2016 by NABCI

**Conservation Assessment Status** - The 2016 State of North America's Birds report is based on a conservation status assessment of 1,154 native bird species that breed in the continental U.S., Canada, and Mexico, as well as oceanic birds that regularly occur in waters off these three countries. Every bird species was assessed throughout its range and annual cycle. This assessment employs biological criteria to evaluate distinct components of vulnerability, including population size, distribution, threats and population trend.

**Main Results** - Habitat types fell into one of four levels of concern based on the percentage of species they contain that are on the Watch List:

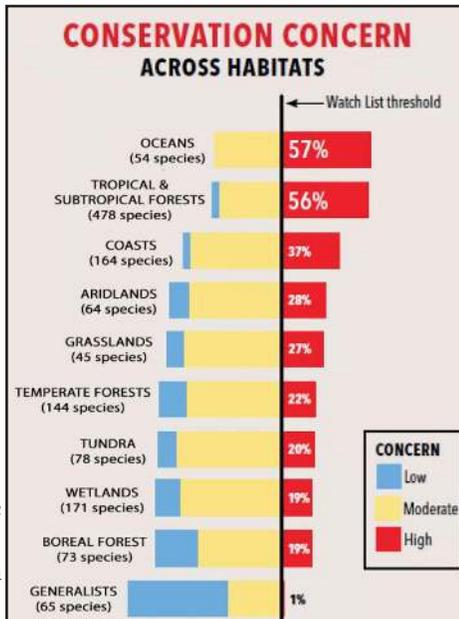
**In Crisis:** Oceans and Tropical Forests - More than half of species from oceans and tropical forests are on the Watch List because of small and declining populations, small ranges, and severe threats to their habitats.

**Steep Declines:** Coasts, Aridlands, Grasslands - Many species in coastal, grassland, and aridland habitats are declining steeply. In particular, long-distance migratory shorebirds and species that migrate from the Great Plains to Mexico's Chihuahuan grasslands have lost, on average, almost 70% of their continental populations since 1970.

**Mixed Status:** Temperate Forests, Tundra, Wetlands, Boreal Forest - Most species in these habitats are of moderate or low concern, yet roughly 20% are on the Watch List.

Waterfowl have benefited from careful harvest management and wetland conservation, but positive waterfowl trends may not last if wetlands loss continues.

**Faring Well:** Generalists - This group, birds that are adaptable and can live in multiple habitats, are of lowest conservation concern.



## WWG Member Survey

Contribute to the direction of the Wetlands Working Group during 2017 by completing this short survey. It only take a couple of minutes and will help us plan future activities.

<https://www.surveymonkey.com/r/WF8WDK2>

Please respond by October 13<sup>th</sup> - results will be discussed at our 2016 Annual Meeting.

## Support Bird Habitat Conservation Efforts

**Buying a Federal Duck Stamp** is one of the simplest ways to support bird habitat conservation. Duck Stamps are a required annual purchase for waterfowl hunters 16 and older, and a current duck stamp grants the bearer free entrance into any national wildlife refuge that charges an entry fee. But whether you are a hunter, birder or other outdoors enthusiast or you simply want to help preserve our natural resources for future generations to enjoy, you can contribute to conservation by buying Duck Stamps.

Ninety eight percent of the purchase price goes directly to help acquire and protect wetland habitat and purchase conservation easements for the National Wildlife Refuge System. Protected wetlands help purify water, aid in flood control, reduce soil erosion and sedimentation, and enhance outdoor recreation opportunities.



## 2016 Federal Duck Stamp Contest Winner

**News from U.S. Fish and Wildlife Service** - James Hautman's painting of a trio of Canada geese took top honors at the 2016 Federal Duck Stamp Contest, held Sept. 9<sup>th</sup> and 10<sup>th</sup> at the Academy of Natural Sciences in Philadelphia, co-hosted by the U.S. Fish and Wildlife Service's Northeast Region.



## 2018 Arid Wetlands Symposium

The Wildlife Section of the Society of Wetland Scientist (SWS) is planning an Arid Wetlands Symposium at the 2018 SWS meeting in Denver, Colorado. The goal is to bring together scientists and managers from arid wetlands across North America and Asia to address the unique challenges posed in managing and conserving arid wetlands and their species.

If you are interested in being part of the symposium contact Sammy King (SKing@agcenter.lsu.edu) or Auriel Fournier (aurielfournier@gmail.com).

## Literature Cited for Wetland Connections of the Intermountain West

[CEC] Commission for Environmental Cooperation (CEC). 1997. Ecological Regions of North America, Toward a Common Perspective. Published by the Communications and Public Outreach Department of the CEC Secretariat. Technical Report.

Blevins, S. 2015. Valuing the Non-Agricultural Benefits of Flood Irrigation in the Upper Green River Basin. Master's thesis, University of Wyoming, Laramie, Wyoming, USA.

Cooper, D. J., R. A. Chimner, and D. M. Merritt. 2012. Western mountain wetlands. Pages 313–328 in D. P. Batzer and A. H. Baldwin, editors. Wetland habitats of North America. University of California Press, Berkeley, California.

Copeland, H. E., S. A. Tessman, E. H. Girvetz, L. Roberts, C. Enquist, A. Orabona, S. Patla, and J. Kiesecker. 2010. A geospatial assessment on the distribution, condition, and vulnerability of Wyoming's wetlands. Ecological Indicators 10:869–879.

Dahl, T. E. 1990. Wetland losses in the United States 1780's to 1980's. U.S. Department of Interior, Fish and Wildlife Service, Washington, D.C., USA.

Donnelly, J. P., D. E. Naugle, C. A. Hagen, and J. D. Maestas. 2016. Public lands and private waters: scarce mesic resources structure land tenure and sage-grouse distributions. Ecosphere 7:e01206

Donnelly J.P., and J. L. Vest. (2012) Identifying Science Priorities 2013–2018: Wetland Focal Strategies. Intermountain West Joint Venture Technical Series 2012-3. Intermountain West Joint Venture, Missoula, Montana, USA.

Downard, R., J. Endter-Wada, and K. M. Kettenring. 2014. Adaptive wetland management in an uncertain and changing arid environment. Ecology and Society 19(2):Article 23.

Haig, S. M., D. W. Mehlman, and L. W. Oring. 1998. Avian movements and wetland connectivity in landscape conservation. Conservation Biology 12:749–758.

Kadlec, J. A., and L. M. Smith, 1989. The Great Basin marshes. Pages 451–474 in L. Smith, R. L. Pedersen, and R. M. Kaminski, editors. Habitat management for migrating and wintering waterfowl in North America. Texas Tech University Press, Lubbock, Texas, USA.

Leu, M., S. E. Hanser, and S. T. Knick. 2008. The human footprint in the West: a large-scale analysis of anthropogenic impacts. Ecological Applications 18: 1119–1139.

Lovvorn, J. R., and E. A. Hart. 2004. Irrigation, salinity, and landscape patterns of natural palustrine wetlands. Pages 105–129 in M. C. McKinstry, W. A. Hubert, and S. H. Anderson, editors. Wetland and Riparian Areas of the Intermountain West: Ecology and Management. University of Texas Press, Austin Texas, USA.

Maupin, M. A., J. F. Kenny, S. S. Hutson, J. K. Lovelace, N. L. Barber, and K. S. Linsey (2014). Estimated use of water in the United States in 2010. U.S. Geological Survey Circular 1405.

McKenney, B.A., Kiesecker, J.M., 2009. Policy Development for Biodiversity Offsets: A Review of Offset Frameworks. Environ. Manage. 45:165–176.

McKinstry, M. C. 2004. Conclusions and future directions. Pages 397–303 in M. C. McKinstry, W. A. Hubert, and S. H. Anderson, editors. Wetland and Riparian Areas of the Intermountain West: Ecology and Management. University of Texas Press, Austin Texas, USA.

Peck D.E., and J.R. Lovvorn (2001) The importance of flood irrigation in water supply to wetlands in the Laramie Basin, Wyoming, USA. Wetlands 21:370–378.

Petrie, M., J. Vest, and D. Smith. 2013. Waterfowl. Intermountain West Joint Venture Implementation Plan. Intermountain West Joint Venture, Missoula, Montana, USA.

Ward, F.A., and M. Pulido-Velazquez. 2008. Water conservation in irrigation can increase water use. Proceedings Natural Academy of Sciences 105:18215–18220.

## Questions?

Interested in sharing  
your wetland experiences  
and contributing to the  
Newsletter?

Contact Us!

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## How to Join WWG

When you renew your TWS membership, sign up for the Wetlands Working Group!

If you're already a member of TWS, you can add membership in the Wetlands Working Group at any time by logging into your account at

<http://wildlife.org/>.

Membership dues are only \$5 annually, which helps support activities at meetings and outreach events.



Privately-owned wetlands in the Centennial Valley, Montana.  
Photo by Adonia Henry