



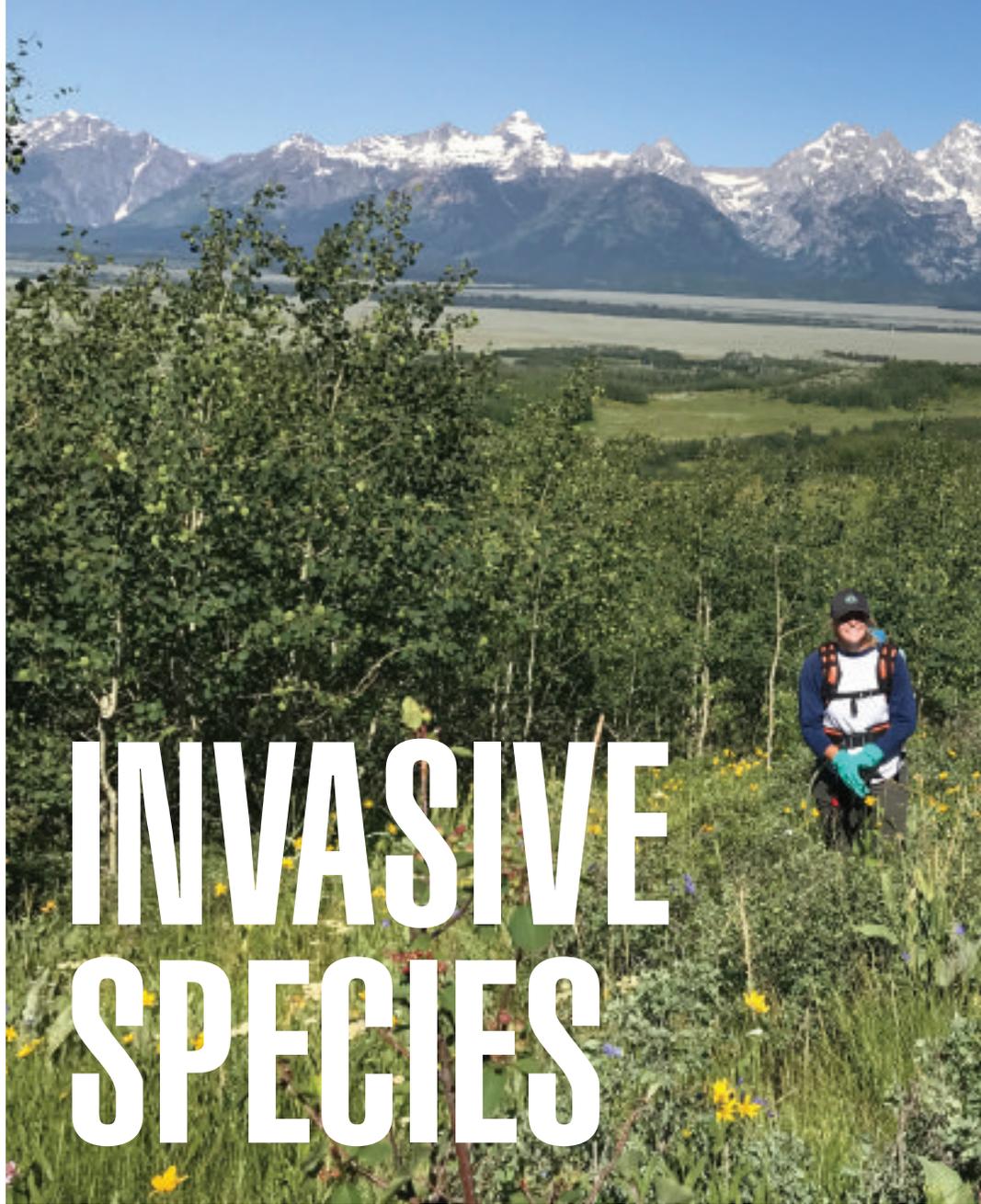
Perennial pepperweed



Saltcedar (tamarix)



Leafy spurge



INVASIVE SPECIES

PERSPECTIVES ON INVASIVE SPECIES

by Mark Daluge & Erika Edmiston, Teton County Weed & Pest District

This essay is based on three basic points.

First, Teton County lies at the center of the Greater Yellowstone Ecosystem (GYE).

Second, maintaining the health of the GYE is vital to maintaining the health of many high-profile and ecologically important species of its indigenous flora and fauna, including: elk, bison, moose, bighorn sheep, wolf, grizzly bear, sage grouse, Snake River cutthroat trout, trumpeter swan, bald eagle, and Teton golden aster.

Third, invasive species are actively threatening the ecological health of the GYE in general, and Teton County in particular.

INVASIVE SPECIES AND AN OUNCE OF PREVENTION

The federal government defines invasive species as species that are: 1) non-native (or alien) to the ecosystem under consideration; and 2) whose introduction causes or is likely to cause economic or environmental harm, or



Stop Invasive
Species In
Your Tracks.



harm to human health. Invasive species can be plants, animals, and other organisms (e.g., microbes).

Nearly three centuries ago, Benjamin Franklin noted that “An ounce of prevention is worth a pound of cure,” and that axiom is as true today as it was then. Whether intentional or unintentional, human actions are the primary cause of invasive species introductions. The easiest, cheapest, most effective way to avoid the manifold problems that arise from invasive species is to prevent their introduction in the first place. Preventive techniques can include public education, certified weed-free hay, aquatic invasive species check stations, vector management to minimize impacts of invasive diseases on human

and animal health, effective seed laws, equipment washing, quarantine, and early detection of new infestations coupled with rapid response.

Unfortunately, despite these and other prevention techniques, invasive species currently affect many aspects of life in Teton County, including healthy ecosystem function, loss of habitat, and economic, recreational, and human health. In particular, over 24,000 acres of Teton County – roughly one percent of the entire county -- are either currently influenced by invasive species or at risk of being so. Of these “affected acres,” over 1,000 are affected by 28 species deemed as “High Priority” by the Teton County Weed & Pest District (TCWPD), the local agency in charge of invasive species-related issues.

Invasive species are prioritized based on a combination of their relative invasiveness and their potential to harm the ecosystem. In 2017, 181 new high priority species locations were documented in Teton County, covering a total of nearly 70 acres. That same year, 15 new infestations occurred in areas throughout the county deemed “high value”; i.e., places of high ecological importance such as the Snake River corridor and the Bridger-Teton Wilderness areas. Such high value locations are managed utilizing TCWPD’s Early Detection Rapid Response technique to ensure that new infestations are detected and treated immediately.

A POUND OF CURE

As with any threat to health, when prevention fails, action must be taken. Similar to human disease, ideally an invasive species infestation can be “cured” (i.e., eliminated from the ecosystem). Much more frequently, though, success instead becomes function of accepting that while we will never completely eliminate the invasive species, with dedicated work over a long period of time, the species can be kept from spreading and doing greater damage.

In the case of Teton County’s invasive species, over the years a number of infestations have been successfully kept in check. One example is Dyer’s woad (*Isatis tinctorial L.*), a plant that has severely infested countless acres between Teton County and Logan, Utah. Locally, since 1995 there have been 59 documented infestations, affecting areas ranging in size from several acres to single plants within a management area. Last year, only 18 of those 59 areas had plants present, a reduction of 70 percent.

Two other long-term successes have occurred during the over-15 years long Snake River Project, a Jackson Hole Weed Management Association project to target high priority species on the Snake River. Of the 99 sites where saltcedar (also known as tamarisk, with the Latin name *Tamarix ssp.*) has been found, in only one did the plant reoccur

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last season. Similarly, of 437 former detection sites for perennial pepperweed (*Lepidium latifolium* L.), only 27 had a plant presence last season.

Invasive species can also harm human health. Mosquitoes are indigenous to Teton County; West Nile Virus (WNV) is not. WNV is carried by mosquitoes and was first detected in the U.S. in New York state in 1999. It arrived in Wyoming in 2002 with two cases reported. Neither was neuroinvasive, but the next year, Wyoming reported 92 neuroinvasive cases, 283 non-neuroinvasive cases, and 9 deaths (*source CDC*). Thanks in part to local mosquito

abatement efforts, though, during the past 8 years over 500 Teton County mosquito sample pools have been tested for WNV, with only 1 positive test result. No human disease cases have been reported as originating in Teton County.

Not all is success, though. One example is the spread of leafy spurge (*Euphorbia esula* L.), a plant that has infested over 5 million acres nationwide as of 2005 (USDA) and is difficult to control. Despite active local efforts, in 2017, 122 of Jackson Hole’s known 275 leafy spurge locations continued to have plant growth, and 17 new locations were identified, scattered widely across the county.

Another species that has proven to be extremely resilient is whitetop (also known as hoary cress, with the Latin name *Cardaria draba*). Despite being targeted with a more intense treatment program in 2017, whitetop continued to be present in 90 of the 308 historic locations, with another 48 new locations recorded. Other species which seem to be spreading are St. Johnswort (*Hypericum perforatum*) and Tall buttercup (*Ranunculus acris* L.), of which 22 and 33 new locations respectively were recorded.

KEEPING AHEAD OF THE PROBLEM

While what drives the introduction and spread of invasive species is well understood, actual introductions can be left undetected for many years, potentially causing great harm to our ecosystem. As Teton County’s population and tourism numbers grow, so too does our vulnerability to the introduc-



tion and spread of invasive species. Further compounding this vulnerability is the increasing ease of access to Teton County, be it by expanded air service, improved roads, and even the increasing amount of goods coming into the region through on-line commerce. Global warming is also a factor, because the resulting changes in temperature, moisture, and the like affect what plants and animals can successfully live and reproduce in a given area of land.

To try to keep ahead of the problem, the region's invasive species management community has begun to promote an outdoor ethic called "PlayCleanGo – Stop Invasive Species In Your Tracks." By following proper procedures before and after an outdoors adventure, the spread of invasive species can be minimized. A few guidelines to follow include:

REMOVE plants, animals & mud from boots, gear, pets & vehicle.

CLEAN your gear before entering & leaving any recreation site.

STAY on designated roads & trails.

USE CERTIFIED or local firewood & hay.

In conclusion, from the perspective of invasive species, Teton County's relative health is neither good nor bad, but instead basically in a neutral-but-stable condition. Scattered throughout the county are areas of very healthy, pristine lands, while elsewhere there are areas of heavy invasive plant and animal infestation. The good news is that the region's most aggressive and harmful species have been identified and located, and are being managed with diligence in a collaborative fashion by a combination of local, state, and federal partners. However, whether the region moves in a more positive or negative direction from its current neutral position will be up to the community and its visitors, for their actions are the major variable in the invasive species equation. Remember: PlayCleanGo!



ABOUT THE AUTHORS

Mark is the Assistant Supervisor for the Teton County Weed and Pest District. Arriving to Teton County in 2003, he has been working in the invasive species industry since 2004 via positions with TCWP and a 5-year experiment as Owner of an invasive species control company. Holding a Bachelor of Science degree in Agricultural Business Management from the University of

Wisconsin. Mark is currently the President of the North American Invasive Species Management Association, and active in the Weed Free Forage, Early Detection – Rapid Response, and Education committees within the Wyoming Weed and Pest Council. In his free time, he enjoys skiing, whitewater rafting, and enjoying the outdoors with his wife and two children.

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Erika is the Supervisor for the Teton County Weed and Pest District. She began her career with the District as a seasonal employee in 2000, was hired full-time as the Education Coordinator in 2002 and became Supervisor in 2004. She has a Master of Science in Science Education from Montana State University and a Bachelor of Arts in Elementary Education from the University of Wyoming. She is Chair of the Wyoming Weed and Pest Council's Education Committee, a former North American Invasive Species Management Association (NAISMA) Board Member, a State of Wyoming Certified Weed and Pest Control District Supervisor and active PlayCleanGo member. Erika and her husband Eddy are raising their two children Jack and Maslyn on the beautiful Moose Head Ranch where Eddy's family have been ranch managers for over 40 years.

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KEY TAKEAWAYS

Invasive species hold the potential to create great environmental and human health issues, and are costly to address.

Human behavior is the major factor affecting the introduction and spread of invasive species.

Despite active prevention and treatment efforts, over 24,000 acres in Teton County, Wyoming -- roughly one percent of its land -- are affected by invasive species.

SUGGESTED NEXT STEPS

Practice the outdoor ethic of PlayCleanGo – Stop invasive species in your tracks!

Create invasive species management plans for all development over ¼ of an acre, as required by the Teton County LDRs

Pay attention to plants that look out of place and report them. Curiosity is our friend!

Do your part! Every landowner in Wyoming is required by State Statute to treat noxious weeds on their land.