Restoration and Conservation to Combat the Biodiversity Crisis:

What I did on my sabbatical

NIU Board of Trustees Meeting

February 2023

Holly P. Jones, Evidence-based Restoration Lab

hjones@niu.edu

Department of Biological Sciences; Institute for the Study of the Environment, Sustainability, and energy

About me

Living classroom

NIU green community putting skills to work on campus

November 10, 2021

DeKalb, Ill. – If you've enjoyed the beauty this fall of NIU's East Lagoon and Montgomery Woods, the latter of which is home to a pair of great horned owls, you can thank our community of environmentally minded students, faculty, staff and alumni.

Professor Holly Jones prepares to drill holes for plant plugs.

A portion of the western shoreline of NIU's iconic East Lagoon, the creek that feeds into it, the gardens at Montgomery Hall and its adjacent forested areas have all had a facelift this past year.

Shoreline stabilization, native plantings, removal of invasive species such as buckthorn. It's get-your-hands-dirty-and-your-feet-wet work that will pay dividends for generations of Huskies—and you're likely to see more


Biodiversity Crisis

Island recovery after invasive mammal removal

Disciplines represented: Practitioners, Conservation Biologists, Population Ecologists

Funders: National Geographic Society, Pacific Seabird Group, Waikato Regional Council, Auckland Council, Ecological Society of Australia, Fullbright, DigitalGlobe, Phi Kappa Phi, NIU

FULBRIGHT

ECOLOGICAL SOCIETY OF AUSTRALIA

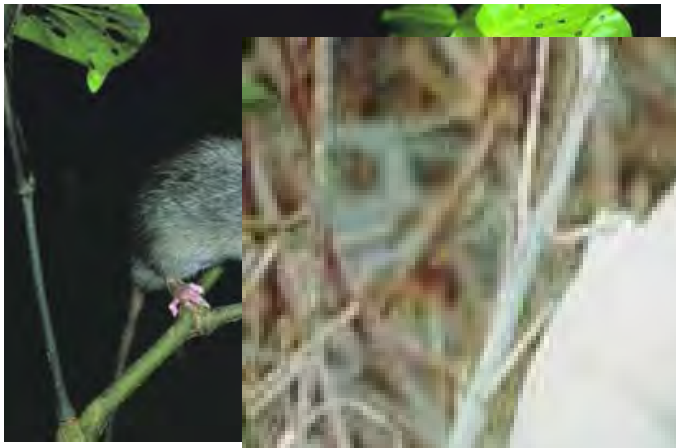
NATIONAL GEOGRAPHIC

Pacific Seabird Group

Waikato REGIONAL COUNCIL

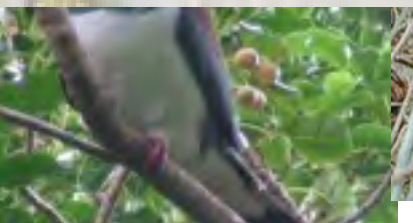
Students are engines of research in my Evidence-based Restoration Lab

Invasive mammals cause most extinctions



plants

abirds



Seabirds are ecosystem engineers

Breeding seabirds at the colony

Seed Dispersal

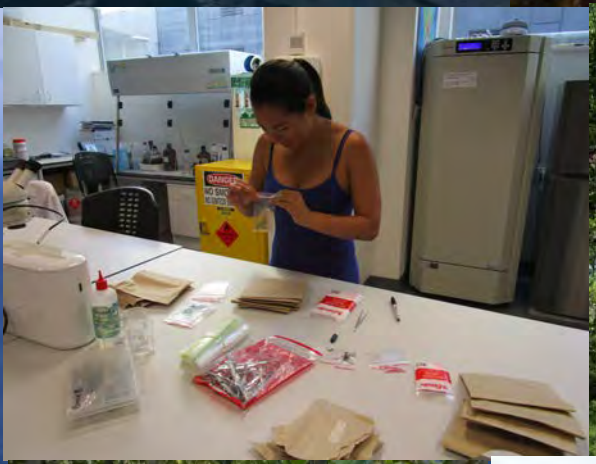
Burrowing

Guano Deposition

Mammals can be removed

How do island ecosystems recover following mammal removal?







Oh, bird poop! Study shows invasive island predators can even disrupt life offshore

November 7, 2022

DeKalb, IL – A new study identifies the "circular economy" of seabirds linking land and sea and shows how invasive predators on an island can disrupt even what's happening offshore beneath the waves.

What's more, at the heart of it all is, well, bird poop.

Led by Professor Holly Jones of Northern Illinois University, the researchers studied four northern New Zealand islands in the same archipelago—two with histories of marauding invasive mammals such as rats, rabbits or cats and two that remain untouched by non-native predators.

A grey-faced petrel on Korapuki, the Mercury

Seabirds themselves are top hunters in the ocean, feeding on squid and fish. On the islands

Prairie responses to restoration

Disciplines represented: Ecology, Practitioners
Funders: Friends of Nachusa Grasslands, The Nature Conservancy, American Society of Mammalogists, Illinois DuPage Birding Club, Natural Areas Association, National Science Foundation, NIU

Prairie-focused Jones Lab members

Tallgrass prairie - one of the most endangered ecosystems

Tallgrass Prairie Center
Anna Groves
Smith and Butler 2011

Nachusa Grasslands - Founded in 1986

Mimic historical disturbance regimes

Bisons are everywhere

Northern Illinois University

Home / Posts / Research by moonlight: Study

Research by n
bison alter 'la
rodents in gra

January 25, 2023

DeKalb, IL – When it comes to whe

The consequences of those decisic
published study so important.

The study looked at how bison rei
in Franklin Grove, Illinois — has im

"What happens when bison are
reintroduced is they alter the 'land
of fear' for small mammals," said P
Holly Jones, a co-author of the stu
carried out by her Evidence-based
Restoration Lab. Jones holds a joi
appointment at NIU in biological s
and environmental studies.

Northern I
University

Home / Posts / Study challeng

Study ch
Dreams'

January 25, 2021

DeKalb, Ill. — If you bu
restoration practices t

The study tested the "
hypothesis, which prec
plant biodiversity will
animal biodiversity. Th
often guides restoratio
infrequently tested be
studies typically meas
biodiversity, but rarely both, said lead author Pete Guiden, a post-doctoral researcher at Northern Illinois University.

Guiden and NIU colleagues studied 17 research plots of restored tallgrass prairie, measuring biodiversity in four animal

Northern
University

Home / Posts / Where the bu

Where t

September 29, 2014

Reintroduction of bis
students

NIU student Angela B
Burbank, Ill.

With its prevalence of
and the regular roar o
from Chicago's Midwa
southwest *suburb* cer

So, for a week in Augu
Burke like she was on another planet – or perhaps living in a time warp – as she stepped out each morning onto the front porch of a little yellow farmhouse, a cup of coffee in hand.

A symphony of songbirds. A pink-haloed sunrise. A misty, endless prairie of tall grass, dotted with sunflowers, forbs and coneflowers in shades of pink, purple and yellow.

Northern
Univers

Home / Posts / Bird's sta

Bird's-

October 12, 2016

Biodivers

Watch on YouTube

Prairie s

November 30, 2015

Nachusa Gra

Watch on YouTube

The **Nachusa Grasslands** near Dixon, Ill., just a 45-minute drive from the NIU campus, had a new visitor flying overhead this past summer, but it wasn't one of the nature preserve's many bird varieties.

World-renowned for its restoration strategies, the **Nachusa Grasslands** preserve near Dixon, Ill., just a 45-minute drive from the NIU campus, provides a rare and stunning reminder of what the "Prairie State" looked like once upon a time—complete with bison roaming its grasslands.

wttw

schedule watch programs events about support

NEWS MAIN WATCH STORY ARCHIVE

Investigations WTTW News Explains Arts & Entertainment Business Crime & Law Education Health Politics Science & Nature

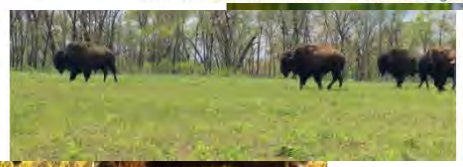
SCIENCE & NATURE

This Week In Nature: Bison Are Making Nights Brighter on the Illinois Prairie. Guess Who's Not Happy

Patty Wetli | February 3, 2023 2:31 pm

Bison are the largest land mammal in North America. (U.S. Fish and Wildlife Service Midwest Region)

Herds of bison have been reintroduced to great fanfare at several eco-restoration sites in the Midwest.



CAPER: Community Assembly in Prairie Ecosystem Restoration

Northern Illinois University

Sustainability center gains momentum

August 31, 2020

DeKalb, Ill. — The planned Northern Illinois Center for Community Sustainability (NICCS) continues to gain momentum, with new faces on campus who will help heighten its profile and faculty affiliates already embarking on exciting new research.

Announced in October 2018, NICCS is part of the Illinois Innovation Network, a group of research and innovation centers aimed at driving economic growth in Illinois and addressing critical global issues. The NIU center supports interdisciplinary research, policy development and public-private partnerships to stimulate economic development and job creation, as well as to attract and develop talent.

1. Sandin, S. A.,et al (2022). Harnessing island–ocean connections to maximize marine benefits of island conservation. *Proceedings of the National Academy of Sciences*, 119(51), e2122354119.
2. Jones, H. P., Borrelle, S. B.*, & Rankin, L.L.* (2022). Land-sea linkages depend on macroalgal species, predator invasion history in a New Zealand archipelago. *Restoration Ecology*, e13798.
3. Pascoe, P.*, et al (2022). The effect of seabird presence and seasonality on ground-active spider communities across temperate islands. Ecology and Evolution, 12(12), e9570.
4. Guiden, P.W., et al (2022). Reintroduced mega herbivores indirectly shape small-mammal responses to moonlight. *Ecology*.
5. Pascoe, P.*, et al (2022). Temporal and spatial variability in stable isotope values on seabird islands: what, where and when to sample. *Ecological Indicators*, 143, 109344.
6. Rowland-Schaefer, E.G.*, et al (2022). Mapping fire history and quantifying burned area through 35 years of prescribed fire history at an Illinois tallgrass prairie restoration site using GIS. *Ecological Solutions and Evidence*, 3(2), e12144.
7. Kurle, C.M.,et al (2022). Co-designed ecological research for more effective management and conservation. *Ecological Solutions and Evidence*, *3*(1), p.e12130.
8. Ladouceur, E., et al (2022). Knowledge sharing for shared success in the decade on ecosystem restoration. *Ecological Solutions and Evidence*. *3*(1), e12117.
9. Holthuijzen, W.A.*, et al (2021). Fly on the Wall: Comparing Arthropod Communities between Islands with and without House Mice (Mus musculus). *Pacific Science*. *75*(3), 371-394.
10. Herakovich, H.*, Barber, N. A., & Jones, H. P. (2021) Assessing the Impacts of Prescribed Fire and Bison Disturbance on Birds Using Bioacoustic Recorders. *American Midland Naturalist*. 186(2): 245-262.
11. Wails, C.N*, et al (2021) Assessing changes to ecosystem structure and function following invasion by Spartina alterniflora and Phragmites australis: A meta-analysis. *Biological Invasions.* 23: 2695-2709.
12. Jones, H. P., & Murphy, S. D. Answering the Call for #GenerationRestoration(2021) *Restoration Ecology.* 29(4): e13343.
13. Hosler, S.C.*, et al (2021) Management actions shape dung beetle community structure and functional traits in restored tallgrass prairie. *Ecological Entomology*. 46(2) 175-186.
14. Halpin, L.R.* et al (2021) Arthropod Predation of Vertebrates Structures Trophic Dynamics in Island Ecosystems. *The American Naturalist*, 198(4): 540-550.
15. Rahman, A. U.*, et al (2021) Disturbance-Induced Trophic Niche Shifts in Ground Beetles (Coleoptera: Carabidae) in Restored Grasslands. *Environmental Entomology* 50(5): 1075-1087.
16. Vanek, J.P.*, et al (2021) Using Long-term Data to Compare Two Sizes of Sherman Trap. *Wildlife Society Bulletin*. 45(4): 574-580.
17. Pascoe, P.* et al (2021). Island characteristics and sampling methodologies influence the use of stable isotopes as an ecosystem function assessment tool. *Ecological Solutions and Evidence*, *2*(3), e12082.
18. Herakovich, H.* et al (2021). Impacts of a Recent Bison Reintroduction on Grassland Bird Nests and Potential Mechanisms for These Effects. *Natural Areas Journal*, *41*(2): 93-103.
19. Vanek, J.P.* et al (2021) Anthropogenic factors influence the occupancy of an invasive carnivore in a suburban preserve system. *Urban Ecosystems*, 24(1): 113-126.
20. Blackburn, R.C.* et al (2021) Monitoring ecological characteristics of a tallgrass prairie using an unmanned aerial vehicle. *Restoration Ecology* 29(S1): e13339.
21. Rankin, L.R.* and H.P. Jones (2021) Nearshore ecosystems on seabird islands are potentially influenced by invasive predator eradications and environmental conditions. *Marine Ecology Progress Series.* 61: 83-96.
22. Blackburn, R.C.* et al (2021) Reintroduced bison diet changes throughout the season in restored prairie. *Restoration Ecology*, 29(S1): e13161.
23. Guiden, P.W. et al (2021) Effects of management outweigh effects of plant diversity on restored animal communities in tallgrass prairies. *Proceedings of the National Academy of Sciences*: 118(5): e201542118.
24. Nelson, M.* et al (2021) Reintroduced grazers and prescribed fire effects on beetle assemblage structure and function in restored grasslands. *Ecological Applications*, 31(1): e02217.
25. Bowler, D. et al. (2020). Mapping human pressures on biodiversity across the planet uncovers anthropogenic threat complexes. *People and Nature* 2(2) 380-394.
26. Blackburn, R.C.*, Barber, N.A. and Jones, H.P.* (2020). Plant Community Shifts in Response to Fire and Bison in a Restored Tallgrass Prairie. *Natural Areas Journal*, *40*(3): 218-227.
27. Herakovich, H.*, & Jones, H. P. (2020). Prescribed Fire Has a Greater Impact on Artificial Nest Predation Than a Recent Bison Re-introduction in Illinois Tallgrass Prairie. *The American Midland Naturalist*, *184*(1), 48-61.
28. Jones, H. P. et al (2020). Global hotspots for coastal ecosystem-based adaptation. *PloS one*, *15*(5), e0233005.
29. Cadotte, M. W., Jones, H.P., & Newton, E. L. (2020). Making the applied research that practitioners need and want accessible. *Ecological Solutions and Evidence*, *1*(1), e12000.
30. Burke, A.M.*, Barber, N.A., and Jones, H.P. (2020). Early small mammal responses to bison reintroduction and prescribed fire in restored tallgrass prairies. *Natural Areas Journal.* 40(1): 35-44.

* = student

Questions?

hjones@niu.edu

https://hjones82.wixsite.com/website