



RECREATIONAL TRAIL IMPACTS ON WILDLIFE with PARTICULAR FOCUS ON OHRVS



Impacts of Recreational Trails on Wildlife



Physiological

Changes in an animal's heart rate, temperature, or stress hormones.



Behavioral

Changes in foraging, vigilance or fleeing from perceived predators.



Reproductive Success

Reduction in the number of nests built, eggs laid or young born and successively raised.



Predation

Scaring an adult away leaves young vulnerable to predation. Adults may be preyed on directly.

Impacts of Recreational Trails on Wildlife

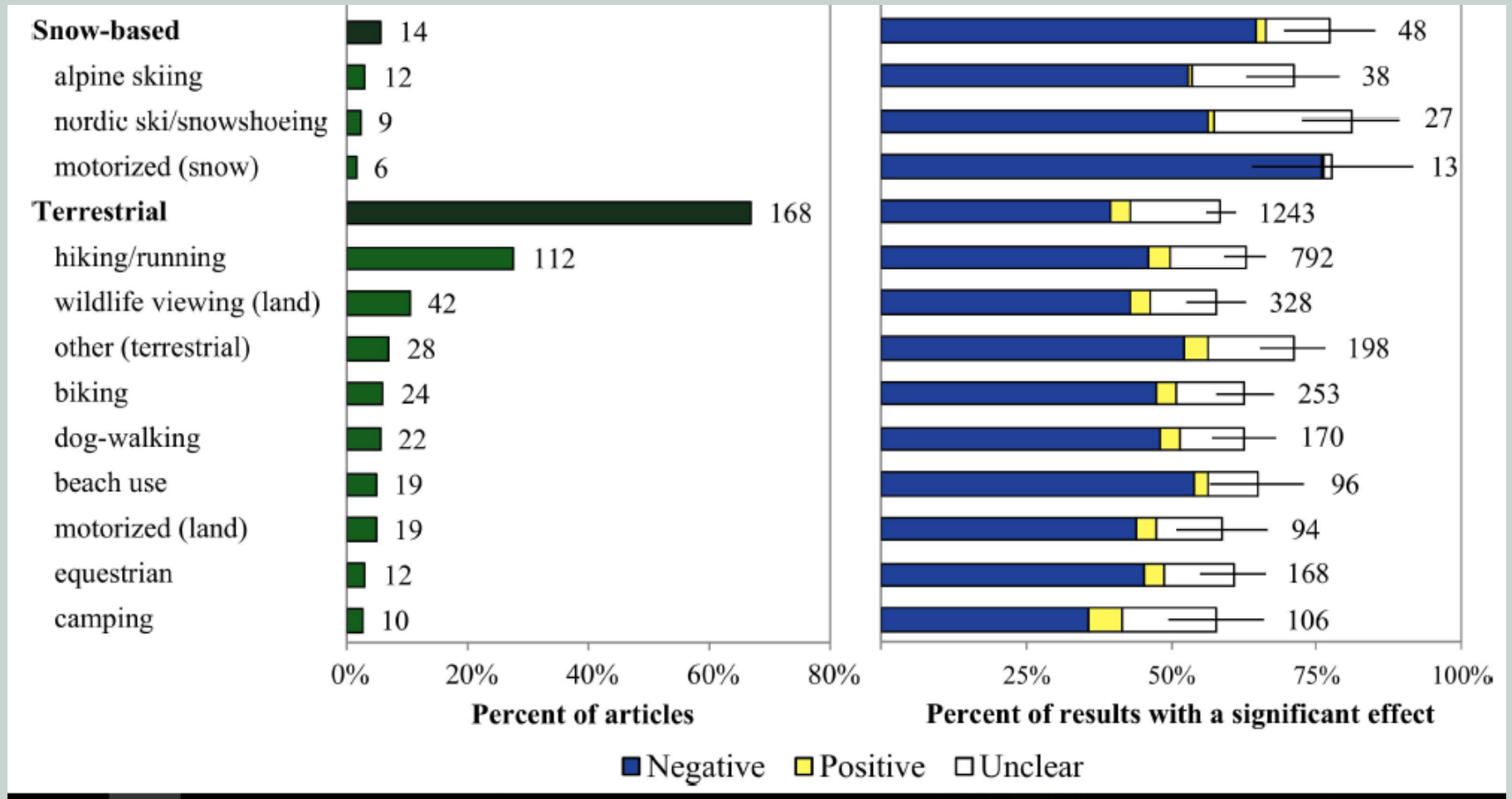
Effects of Rec. on Animals Revealed as Widespread thru Global Systematic Review

Larson, Reed, Merenlender, Crooks (2016) PlosOne

- 274 papers
- North America + Europe
- All taxa – not just birds



Impacts of Recreational Trails on Wildlife



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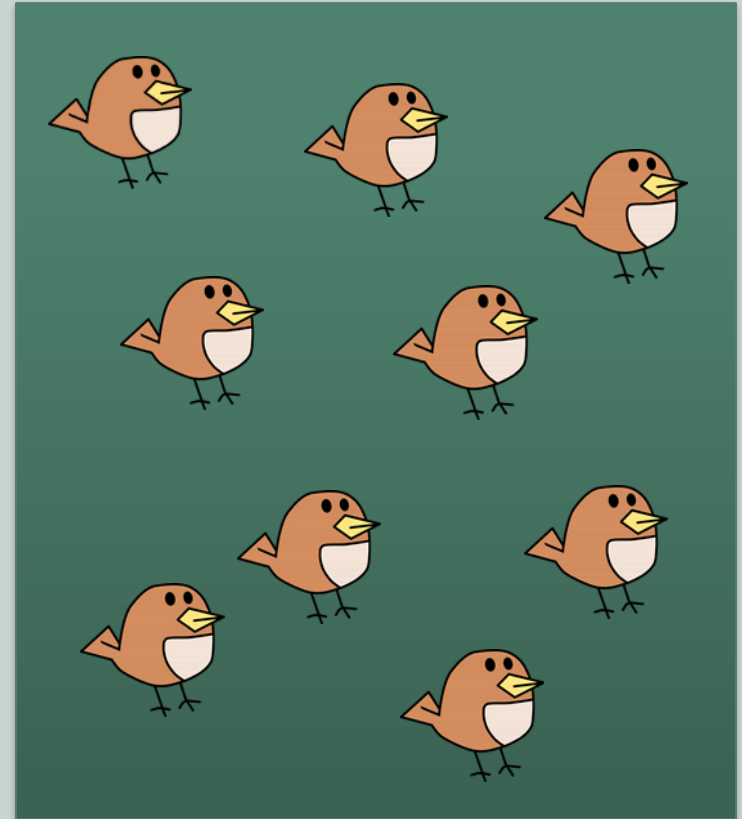
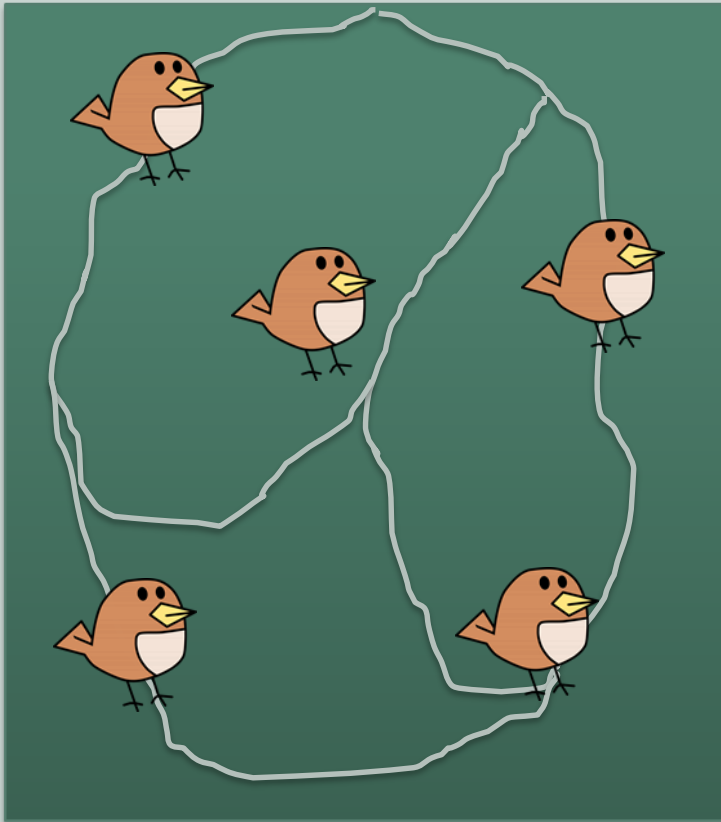
Wildlife & Recreation: Understanding and Managing the Effects of Trail Use on Wildlife

Meredith Naughton (2021) UVM

- Negative effect on wildlife.
- Greatest effects during breeding season.
- Non-motorized recreation has a stronger effect than motorized recreation.
 - Motorized = snowmobiles



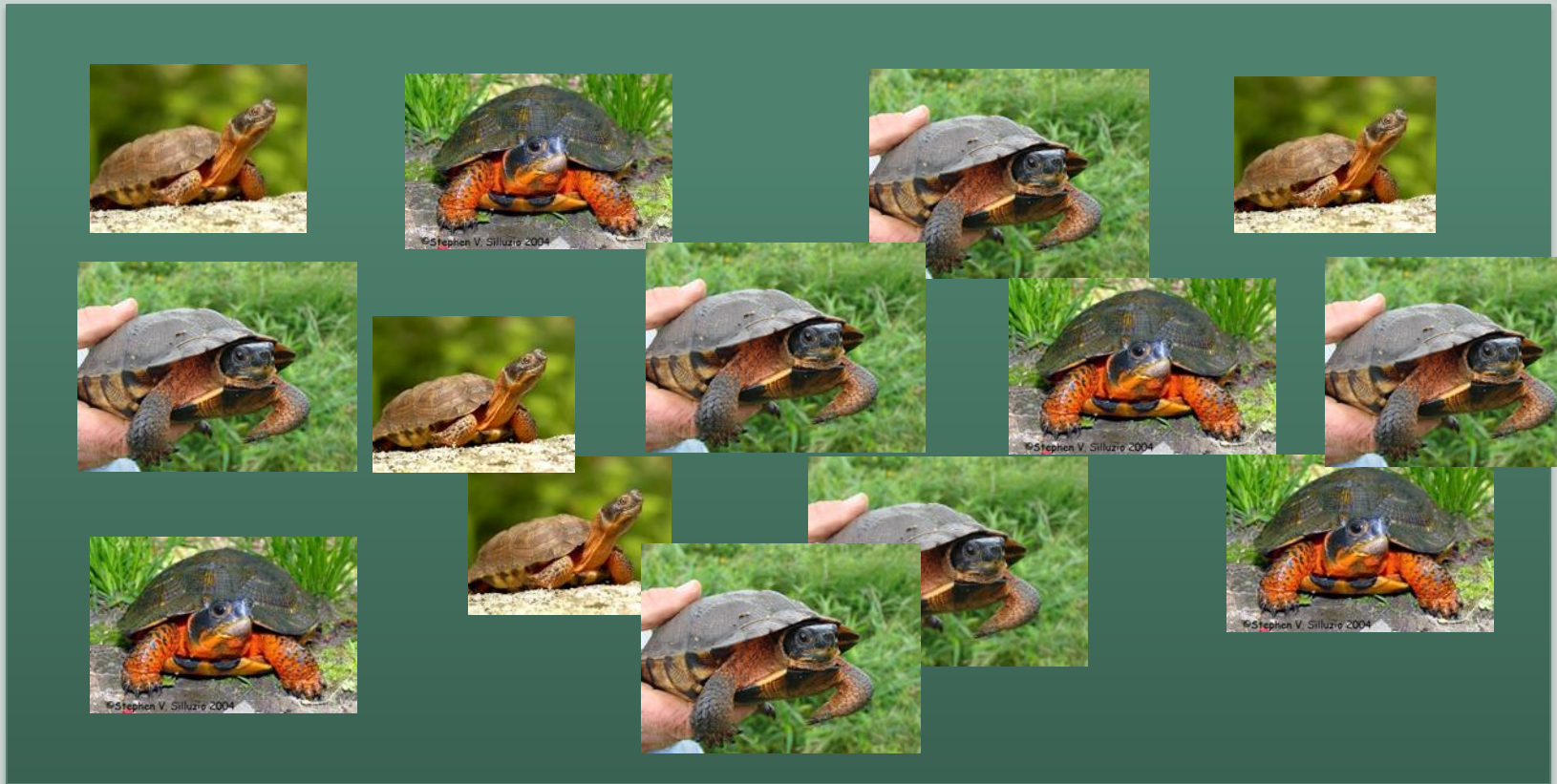
Real World Examples: Pedestrian Trails



Few or no trails = higher density of ground nesting birds

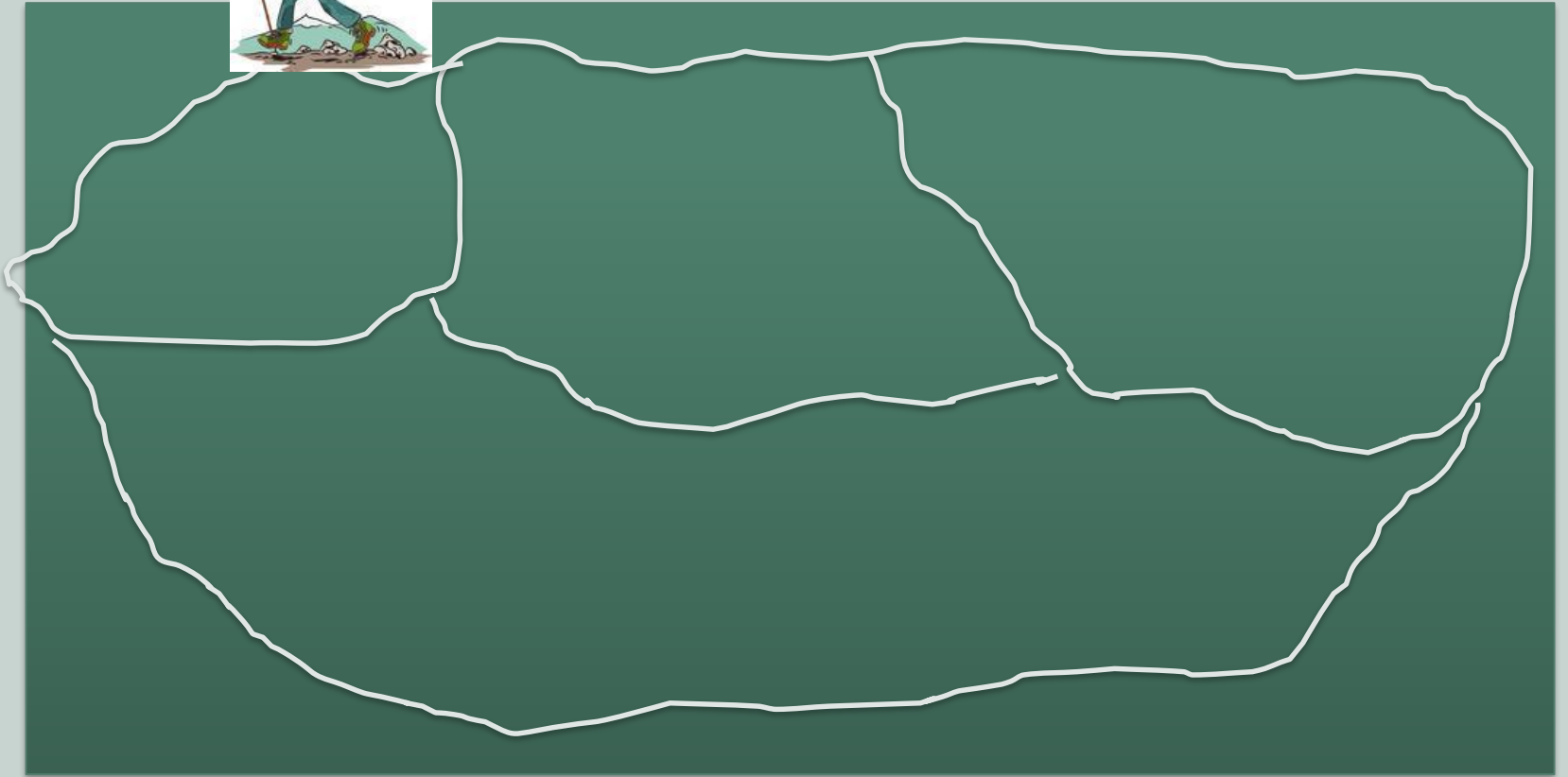
Environ Manage. 2015 May;55(5):1181-90. Recreational trails reduce the density of ground-dwelling birds in protected areas.

Real World Examples: Pedestrian Trails



Garber and Burger. 1995. A 20-Yr Study Documenting the Relationship Between Turtle Decline and Human Recreation. Ecological Applications 5(4):1151

Real World Examples: Pedestrian Trails



Introduction of trails lead to local extirpation of wood turtle population over a 20 year period.

Real World Examples: OHRVs

Effects of Off-Highway Vehicle Use on the American Marten.

The Journal of Wildlife Management, 72(7), 1558–1571.

- Occupancy and daily activity with/without OHRVs.
- Level of OHRV use did not produce effects.
 - Not perceived as threat?
 - Habituation?
 - Use occurred when martens?
- Use = 1 vehicle/2 hours



Real World Examples: OHRVs

Road and Trail Influences on Grizzly Bears and Black Bears in Northwest Montana

Int. Conf. Bear Res. and Manage 8:79-84. 1990.

- Cabinet Mtn Wilderness Area
- Black bears avoid roads and trails in spring and fall.
- Avoidance distance up to 1,000 yards



Real World Examples: OHRVs

The Impact of ATVs on Survival of Softshell Turtle Nests [in LA]

Journal of Herpetology, Vol. 55, No. 2, 201–207, 2021

- Nest survival before and after ATVs introduced.
- ATVs were the most common source of nest mortality (1/3 of nests destroyed).
- Nest mortality increased with increased ATV traffic.



Real World Examples: OHRVs

Effects of off-highway vehicles on avian abundance and diversity in a designated vehicular recreation area in CA

Avian Conservation and Ecology 14(2):9.

- Bird abundance increased with OHRV trail density.
- No impact on species diversity between OHRV and non-OHRV trail areas.
- More research needed: abundance and diversity is not always a good predictor of habitat quality.



Real World Examples: OHRVs

Off-Highway Vehicle Trail Impacts on Breeding Songbirds in Northeastern California.

Journal of Wildlife Management, 71(5), 1617–1620. 2019

- Proximity to OHRV trail increased nest desertion and abandonment.
- Higher for ground-nesting than shrub-nesting birds.
- Reduced quality habitat w/in 100 yards of OHRV trails.

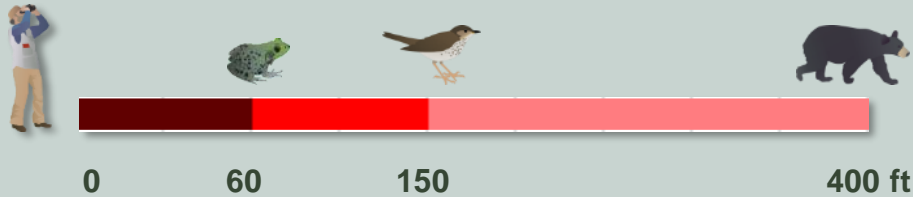


“Corridor of Influence”



OUR PRESENCE CAN BE DETECTED BY WILDLIFE ON EITHER SIDE OF A TRAIL. THIS IS ITS *“CORRIDOR OF INFLUENCE”*

Corridor of Influence “Alert” and “Flight” Distances



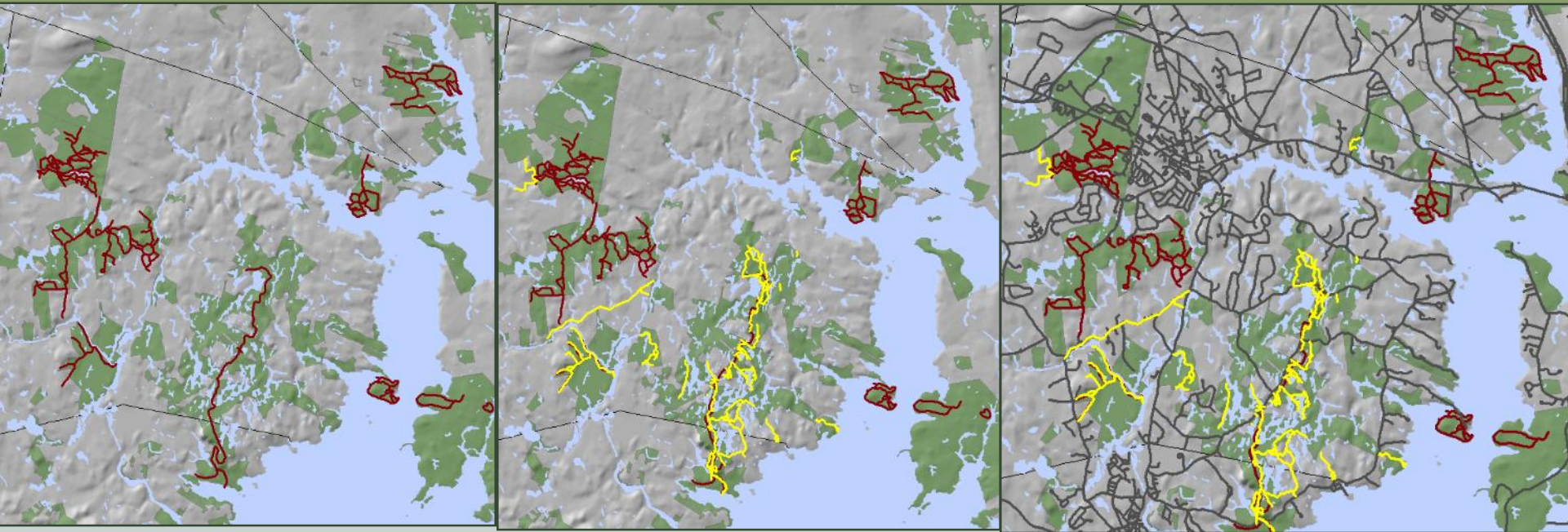
- Herps & birds flee w/in 60 ft of disturbance
- Birds will get disturbed w/in 150 ft of disturbance
- Mammals w/in 400 feet of disturbance



Average Alert and Flight Response Distances (birds, herps, mammals)



Trail and Road Impacts – Present Day Reality



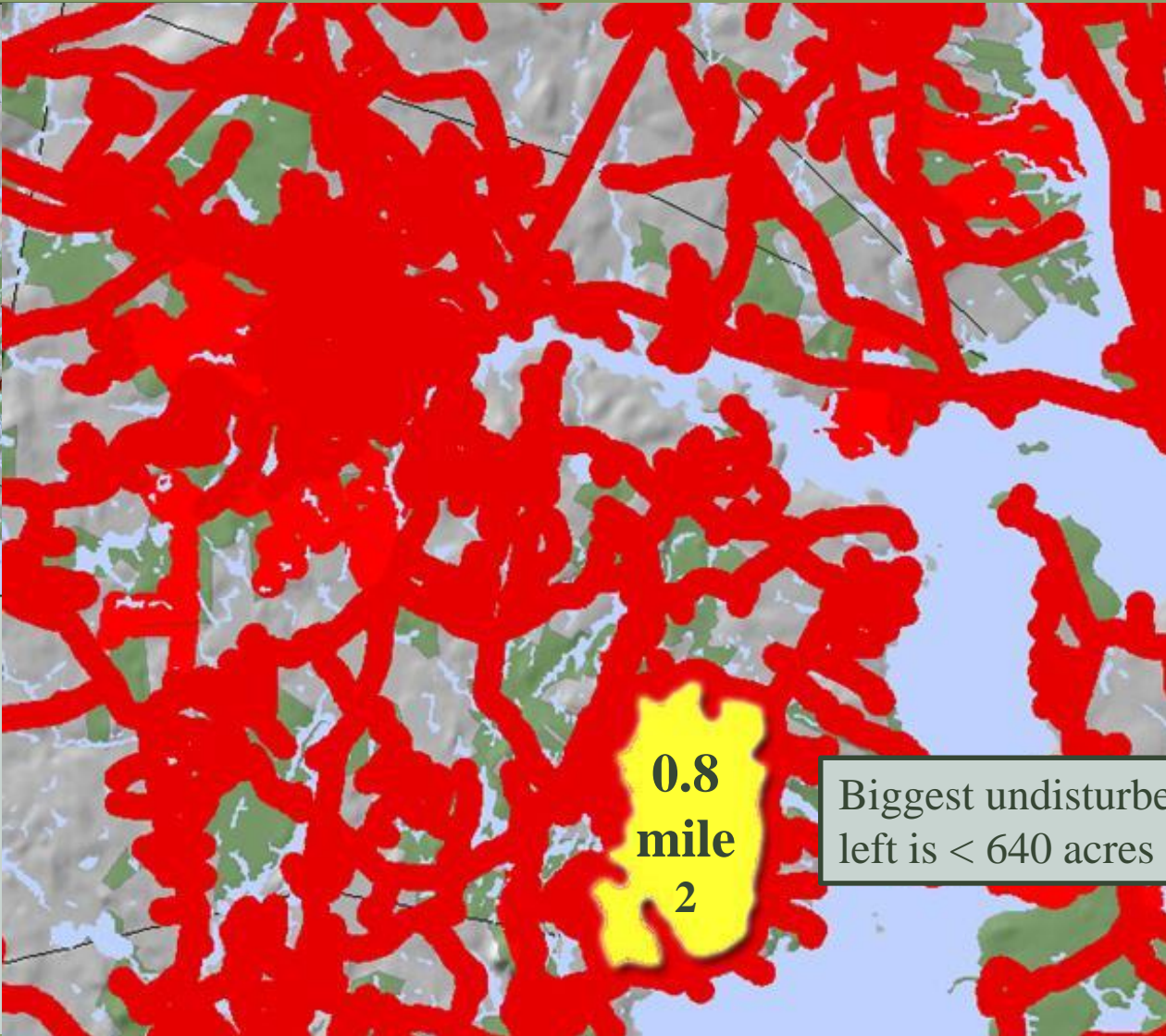
Official trails

+ rogue trails

+ roads

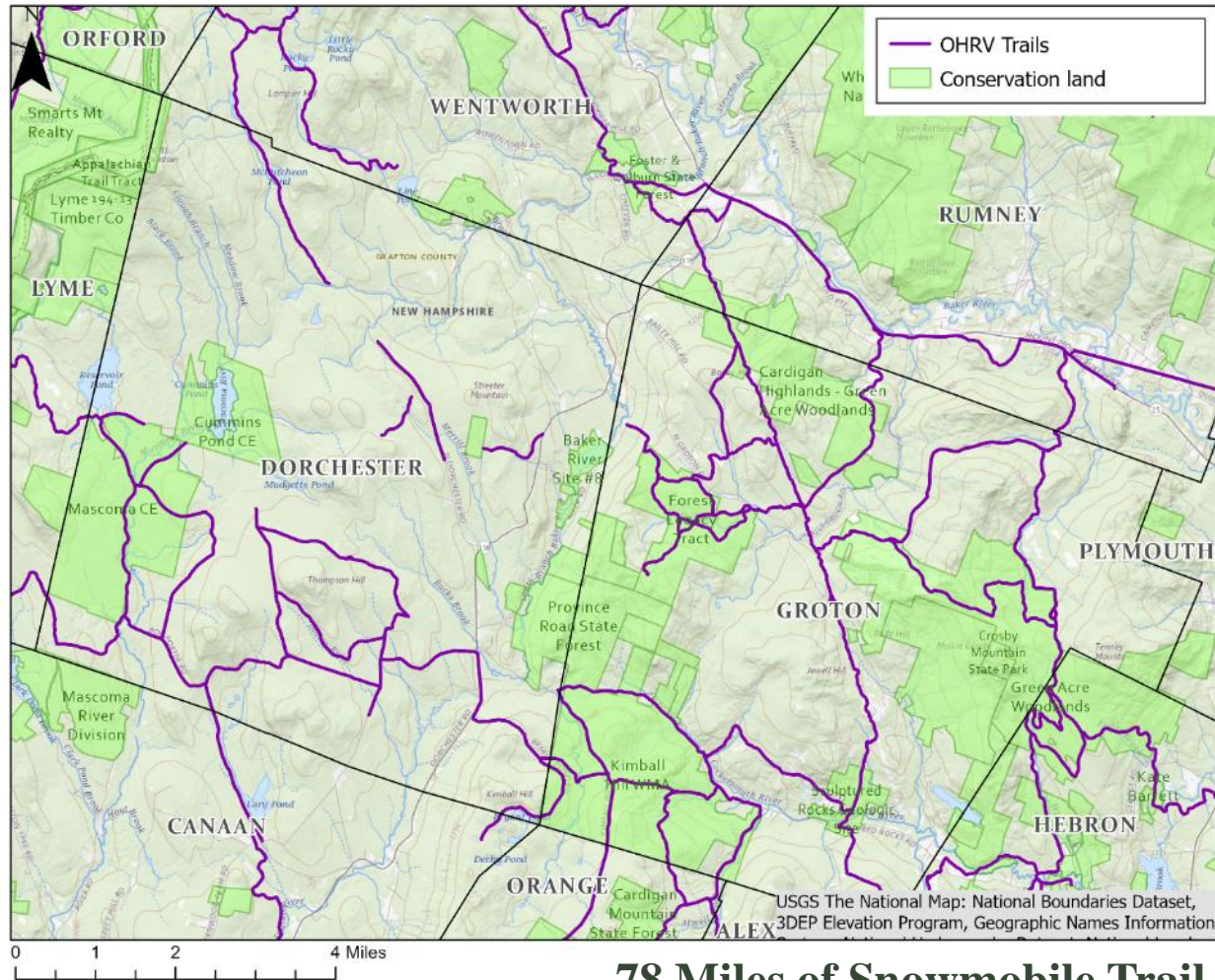
Town of Durham

Trail and Road Impacts – Present Day Reality



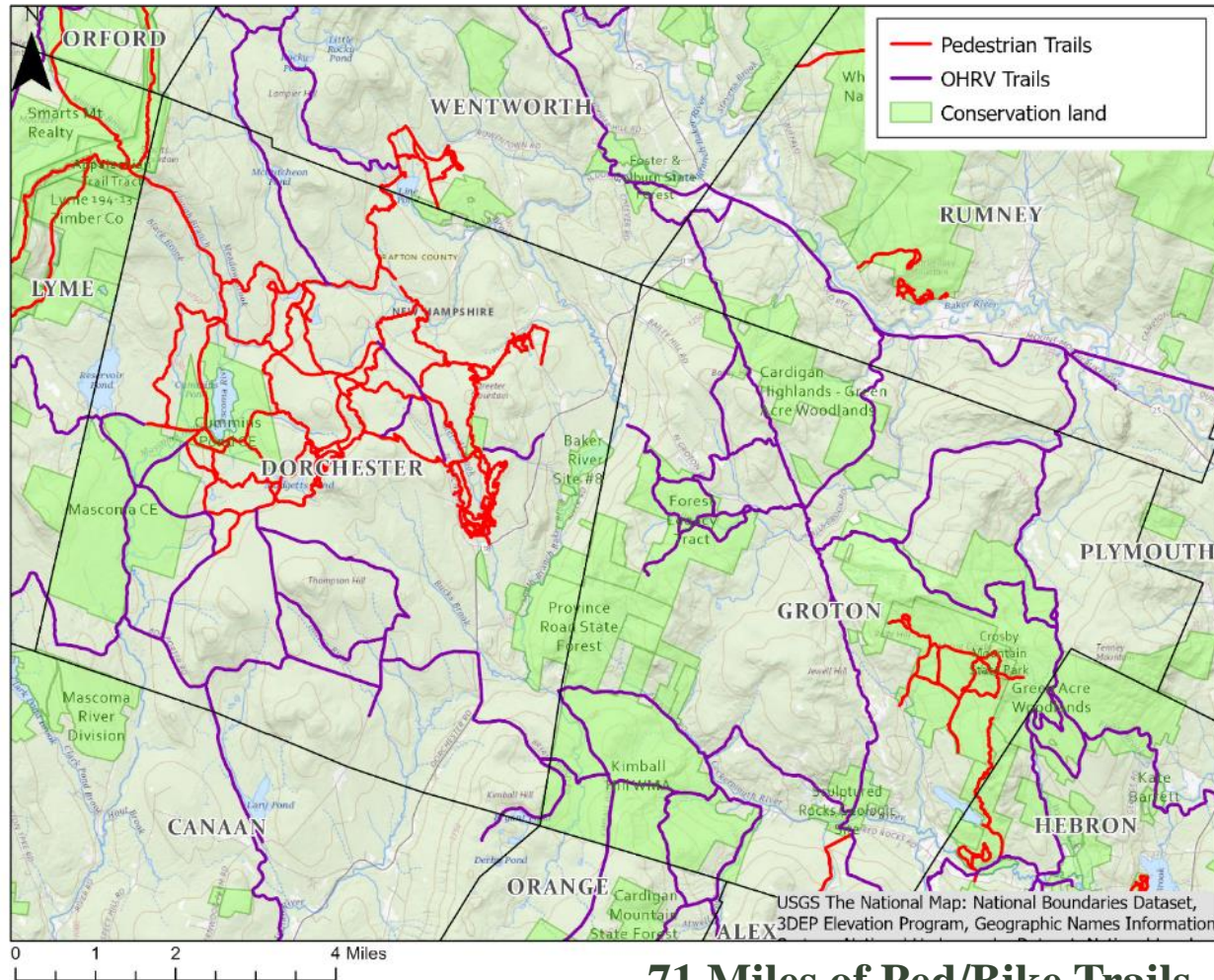
Biggest undisturbed patch
left is < 640 acres

Trail and Road Impacts – Present Day Reality



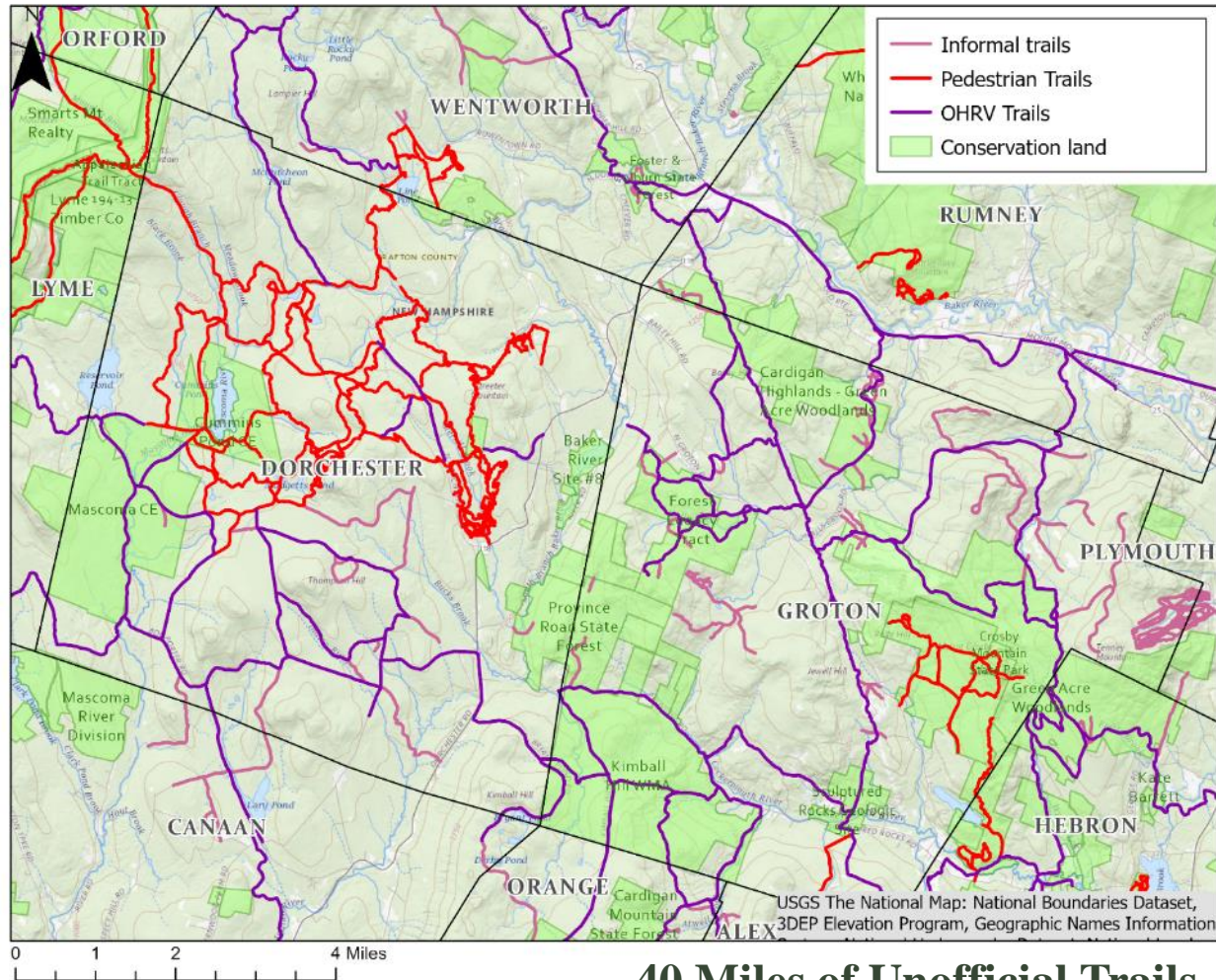
Significant impacts even in rural settings.

Trail and Road Impacts – Present Day Reality



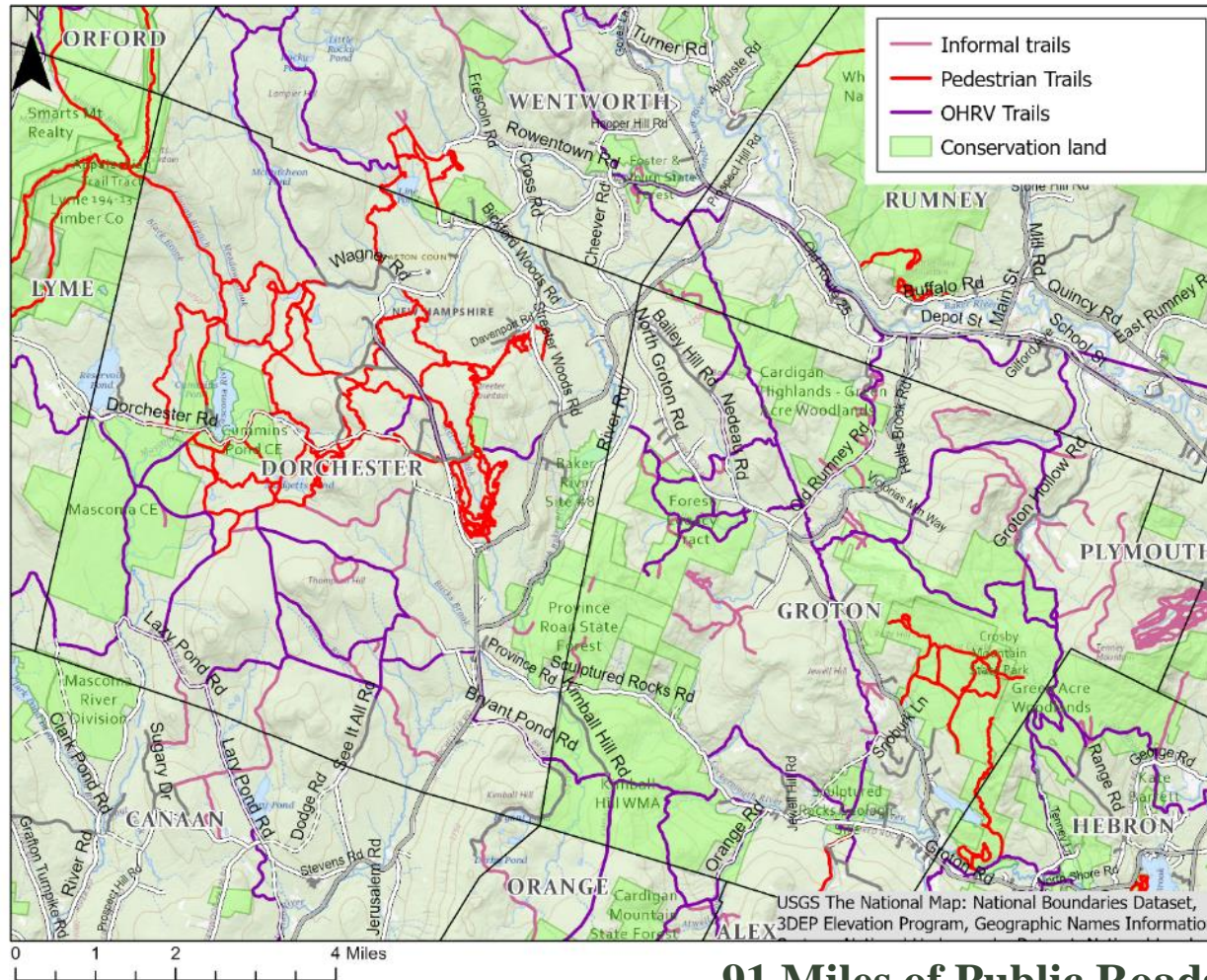
71 Miles of Ped/Bike Trails

Trail and Road Impacts – Present Day Reality



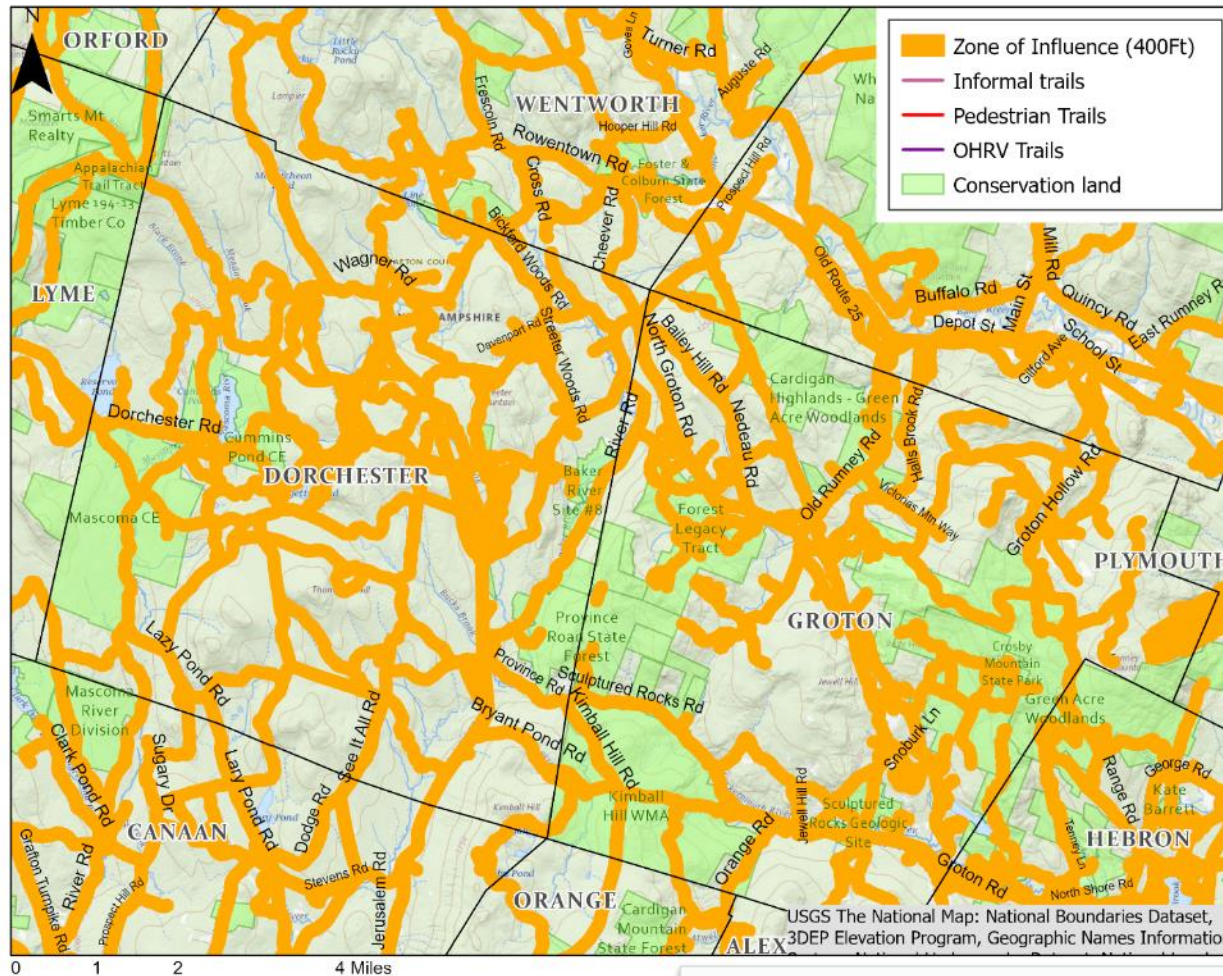
40 Miles of Unofficial Trails

Trail and Road Impacts – Present Day Reality



91 Miles of Public Roads

Trail and Road Impacts – Present Day Reality



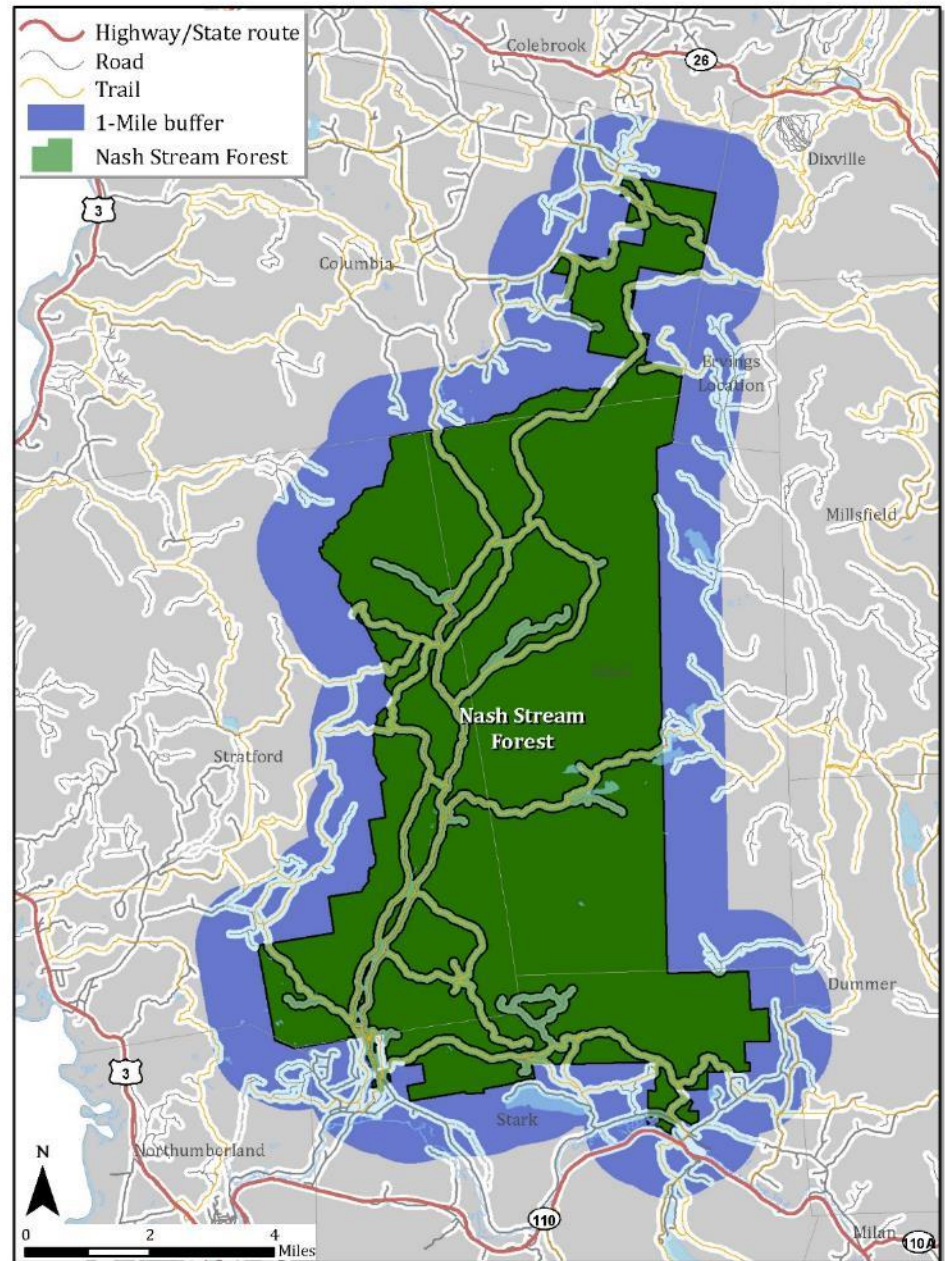
277 Miles of Roads/Trails
19,600 Acres Impacted

Trails data not 100% complete

Trail and Road Impacts – Present Day Reality



Nash Stream Forest: Roads and Trails with 400-ft corridor of influence



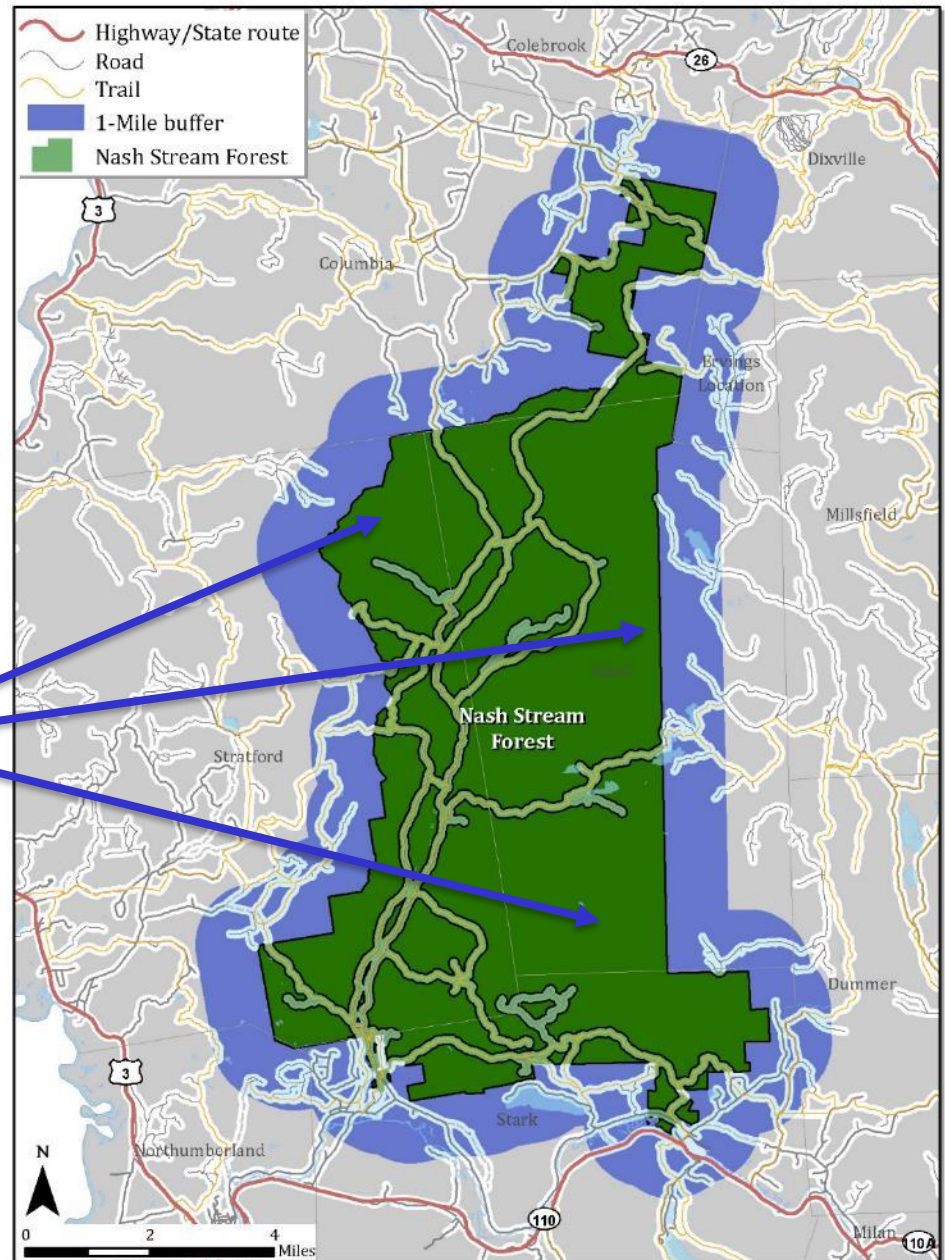
Trail and Road Impacts – Present Day Reality

Area Name	Acres	Miles of Trails	Acres w/in 400-ft corridor of influence	% w/in corridor of influence
Nash Stream Forest	39,126	76	7,012	18
1-mile buffer	33,399	78	9,006	27
Coos County	1,171,973	3,151	346,792	30

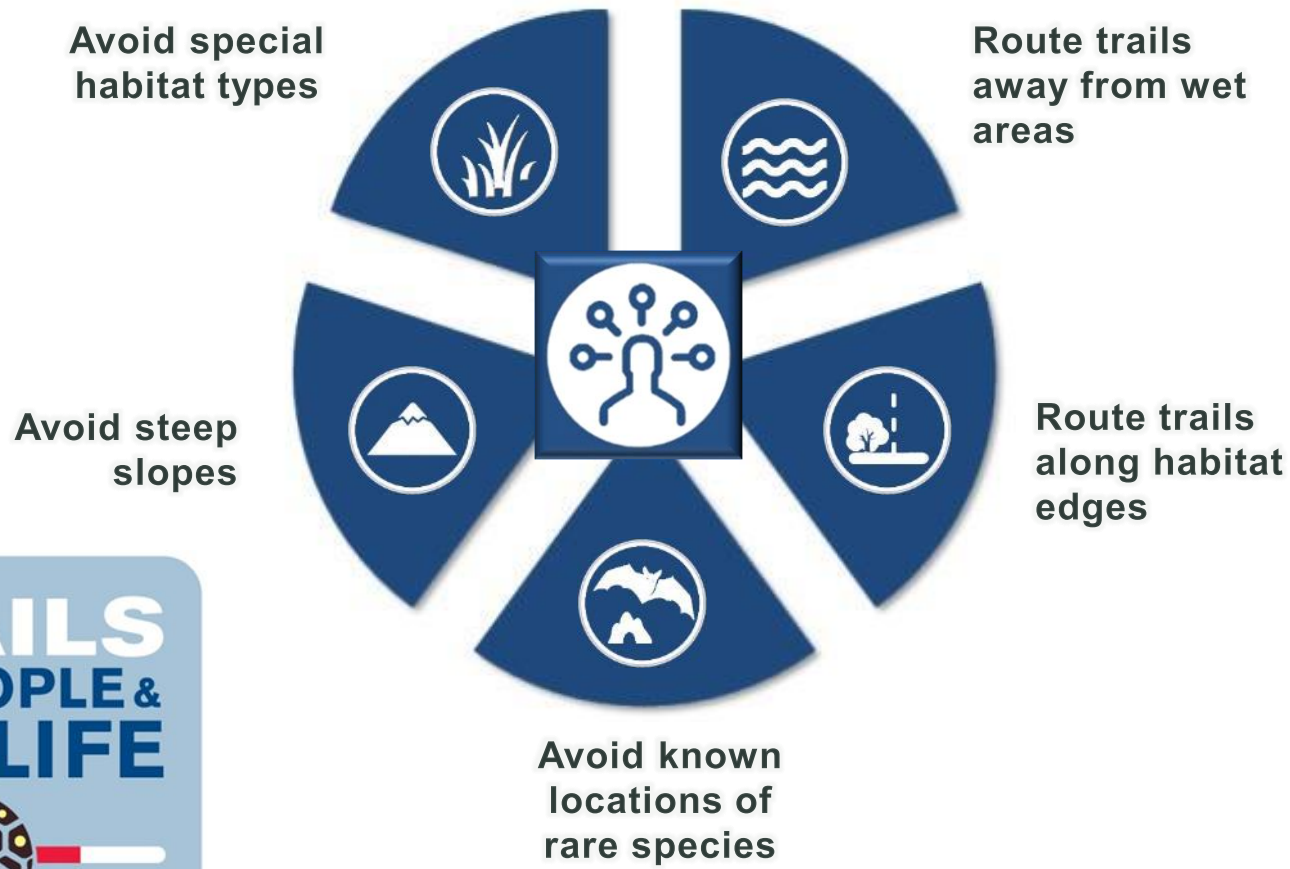
Trail and Road Impacts – Present Day Reality

- Big road and trail impact surrounding Nash SF.
- Biggest undisturbed patches are in Nash SF and abutting lands.

Nash Stream Forest: Roads and Trails with 400-ft corridor of influence



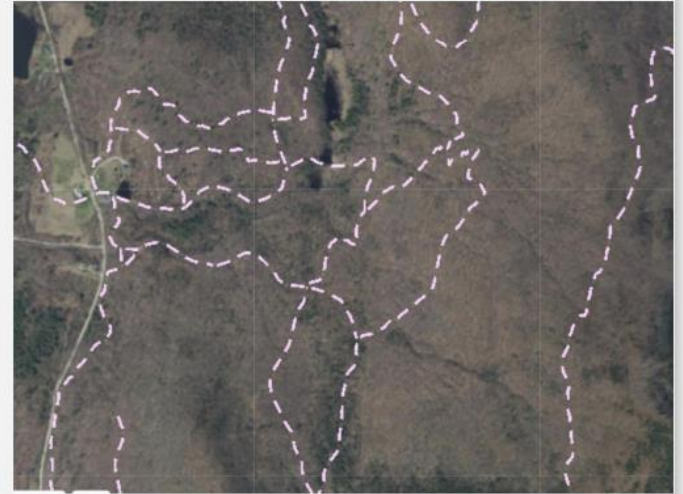
Key Principals for Minimizing Trail Impacts to Wildlife



Key Principals for Minimizing Trail Impacts to Wildlife

- Maintain trail free areas
 - Consolidate trails vs
 - Dispersed trails

Dispersed Trails

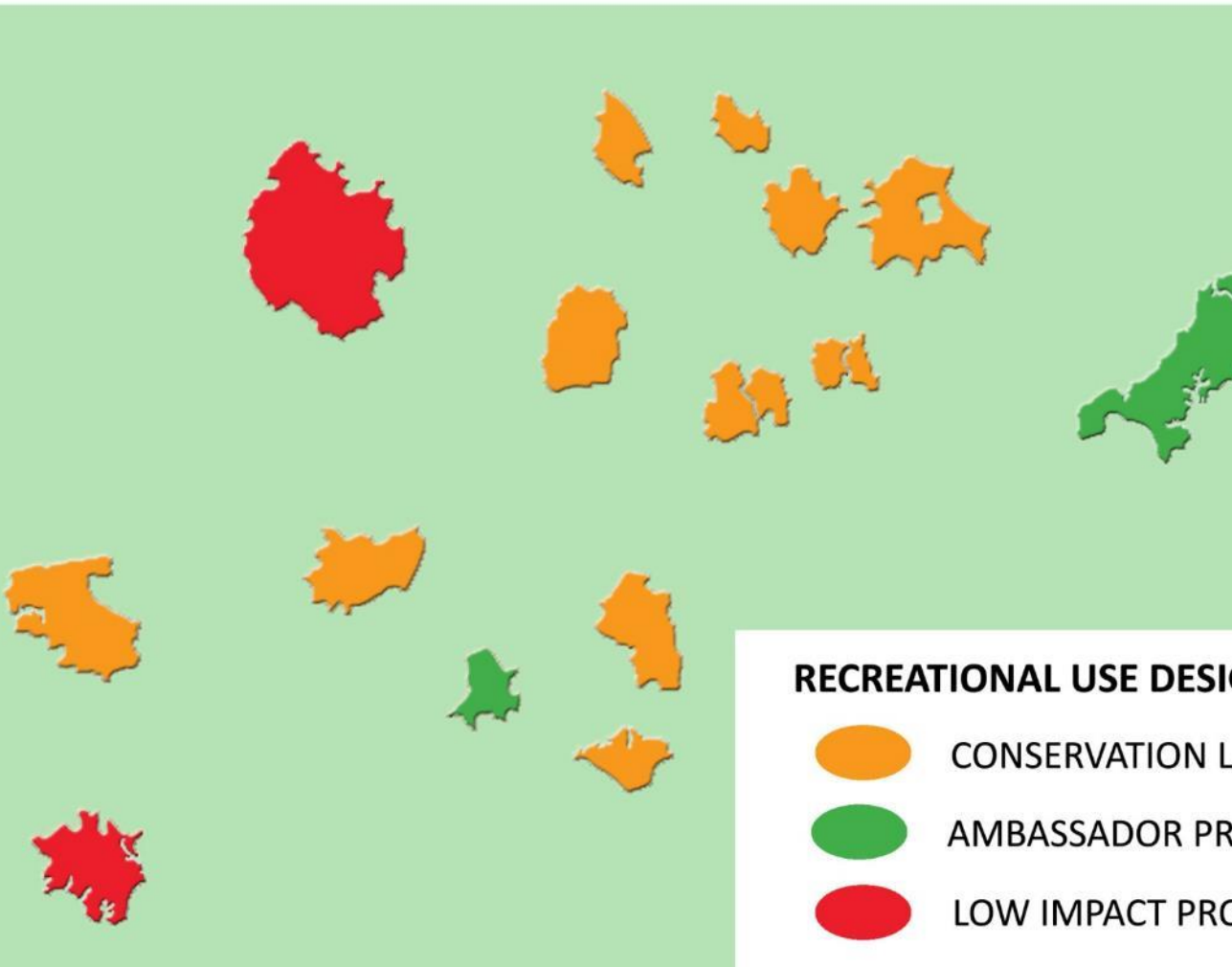


Consolidated Trails






Key Principals for Minimizing Trail Impacts to Wildlife

ALL THE PROPERTIES WE OWN & MANAGE



RECREATIONAL USE DESIGNATION

-  CONSERVATION LAND
-  AMBASSADOR PROPERTY
-  LOW IMPACT PROPERTY



PROPERTIES THAT ARE MAINLY BLUE ARE GOOD CANDIDATES TO BECOME HIGHLY PUBLICIZED "AMBASSADOR" PROPERTIES.



THOSE THAT ARE MAINLY RED WILL IDEALLY BE LEFT AS UNDISTURBED AS POSSIBLE.

Trails for People and Wildlife: Where to Find It

Trails for People and Wildlife

Hiking, mountain biking, bird watching, horseback riding, snowmobiling are just some of the ways we get outside to enjoy nature and unwind from our day-to-day activities. However, even these seeming innocuous activities can have impacts on wildlife including reduced abundance, reproduction, and survival. Thoughtful trail location allows us to get outside to enjoy nature and also minimize disturbance to wildlife.

Funded by the US Fish and Wildlife Service, the New Hampshire Fish and Game Department developed a statewide tool that can be used to assess existing trails and site new trails in the most wildlife-friendly way. This mapping tool highlights areas particularly important for wildlife and areas that would be more suitable for trail development. The guidebook explains in more detail how recreation can impact wildlife, how to use the tool to minimize those impacts, and provides some real-world examples of how others are using it to make



The Trails for People and Wildlife guidebook is available [7.1MB]

Harvey's Kennard Hill Forest
Epping, NH.

A REAL-WORLD CASE STUDY



Case Study: Harvey's Kennard Hill Forest, Epping NH



wildnh.com/trails

