Wild, connected, and diverse:

Appalachian Trail as conservation corridor?

Travis Belote and Pete McKinley

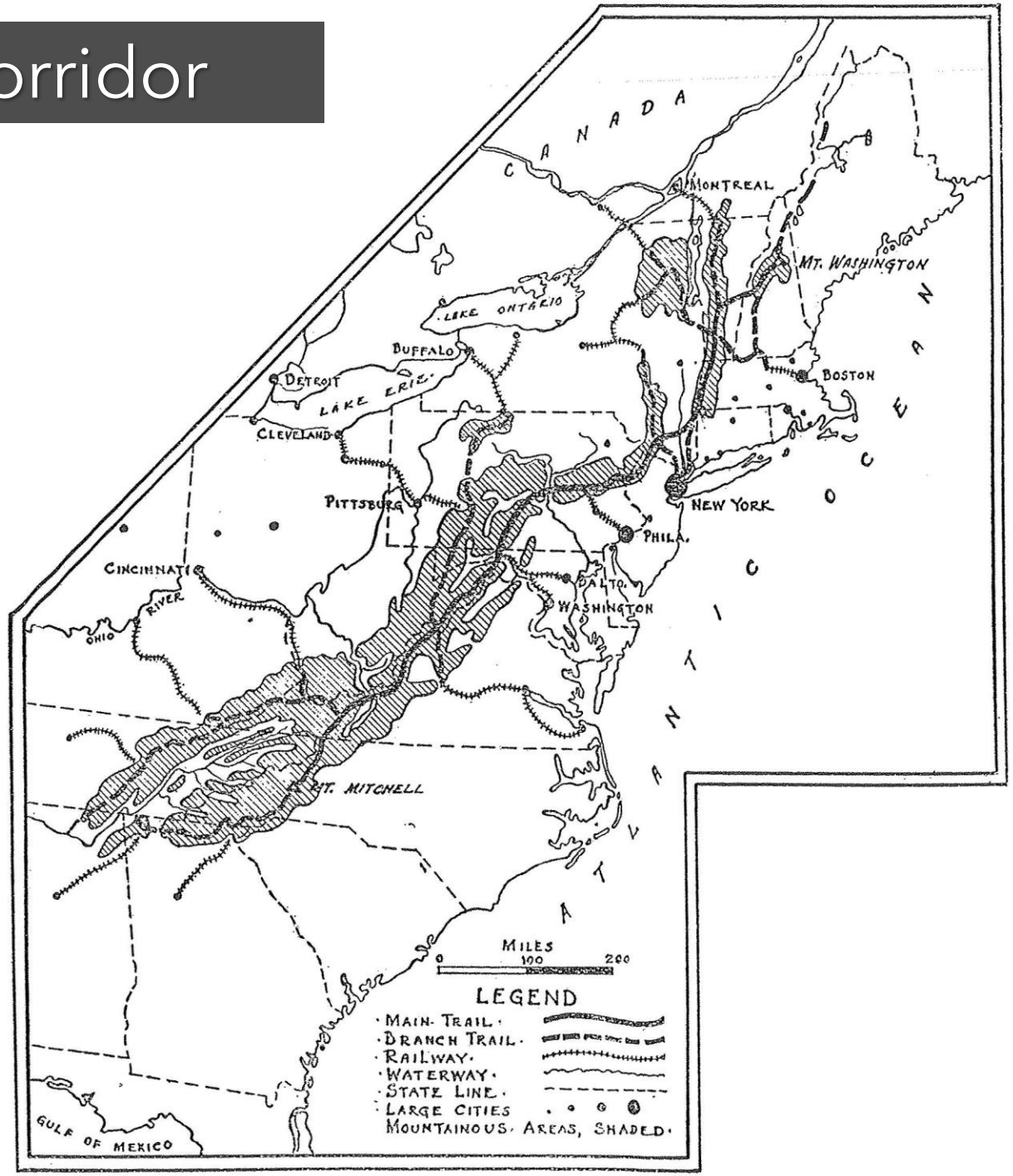
The Wilderness Society

Just cut to the chase…

1. Aspirational and regional visions for conservation can motivate action (e.g., Y2Y).
2. The Appalachian Mountains are a critical region for connectivity and biodiversity, especially in the face of climate change.
3. Data can help identify the most important sections of the AT and put conservation into a broader context.
4. The Appalachian Trail can serve as the "flagship" of a Y2Y-like model, but conservation of biodiversity requires coordination across the broader region.

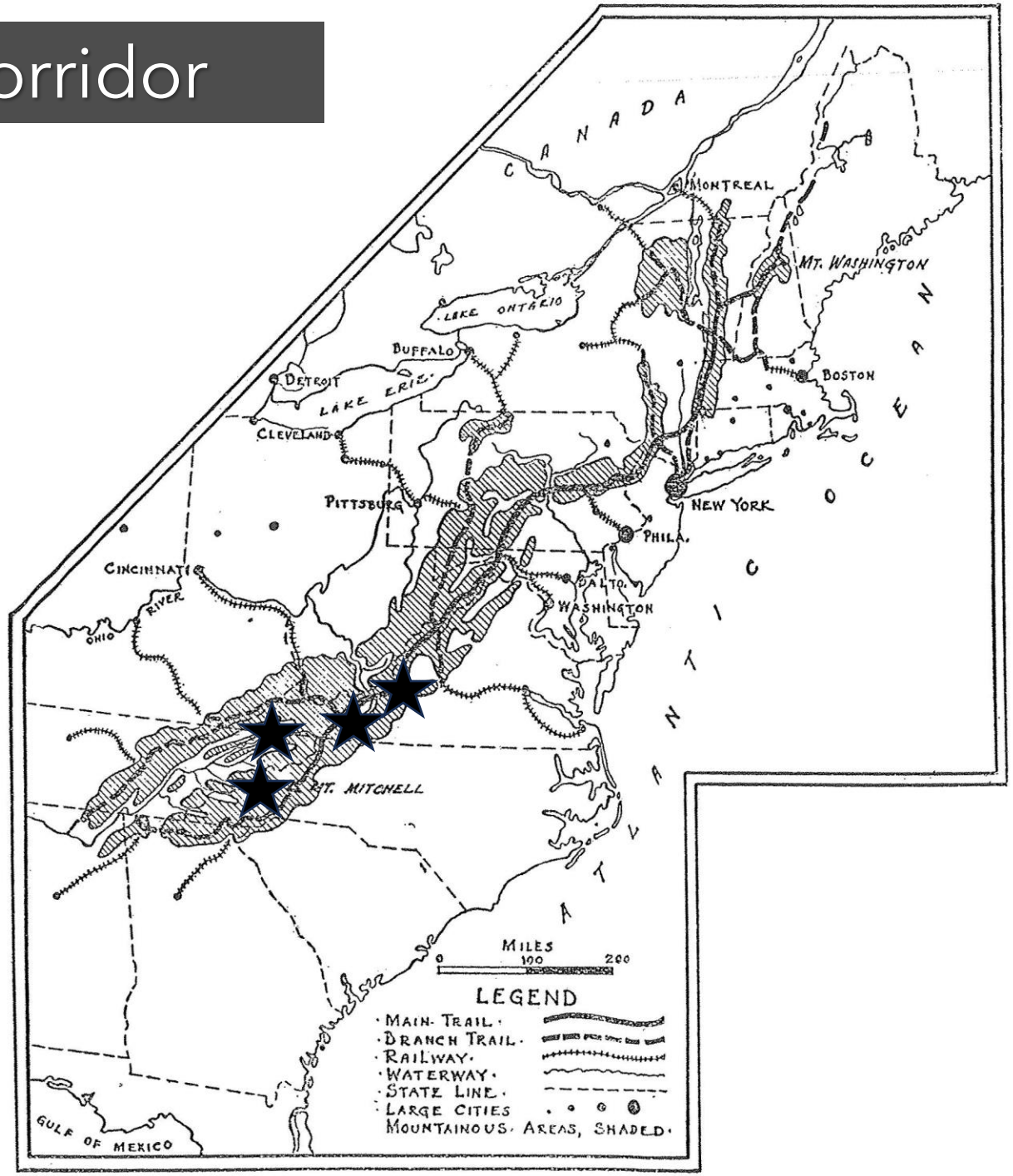
Appalachian Trail as recreation corridor

Founders of The Wilderness Society, 1936



Appalachian Trail as recreation corridor

Scientists of The Wilderness Society, 2017

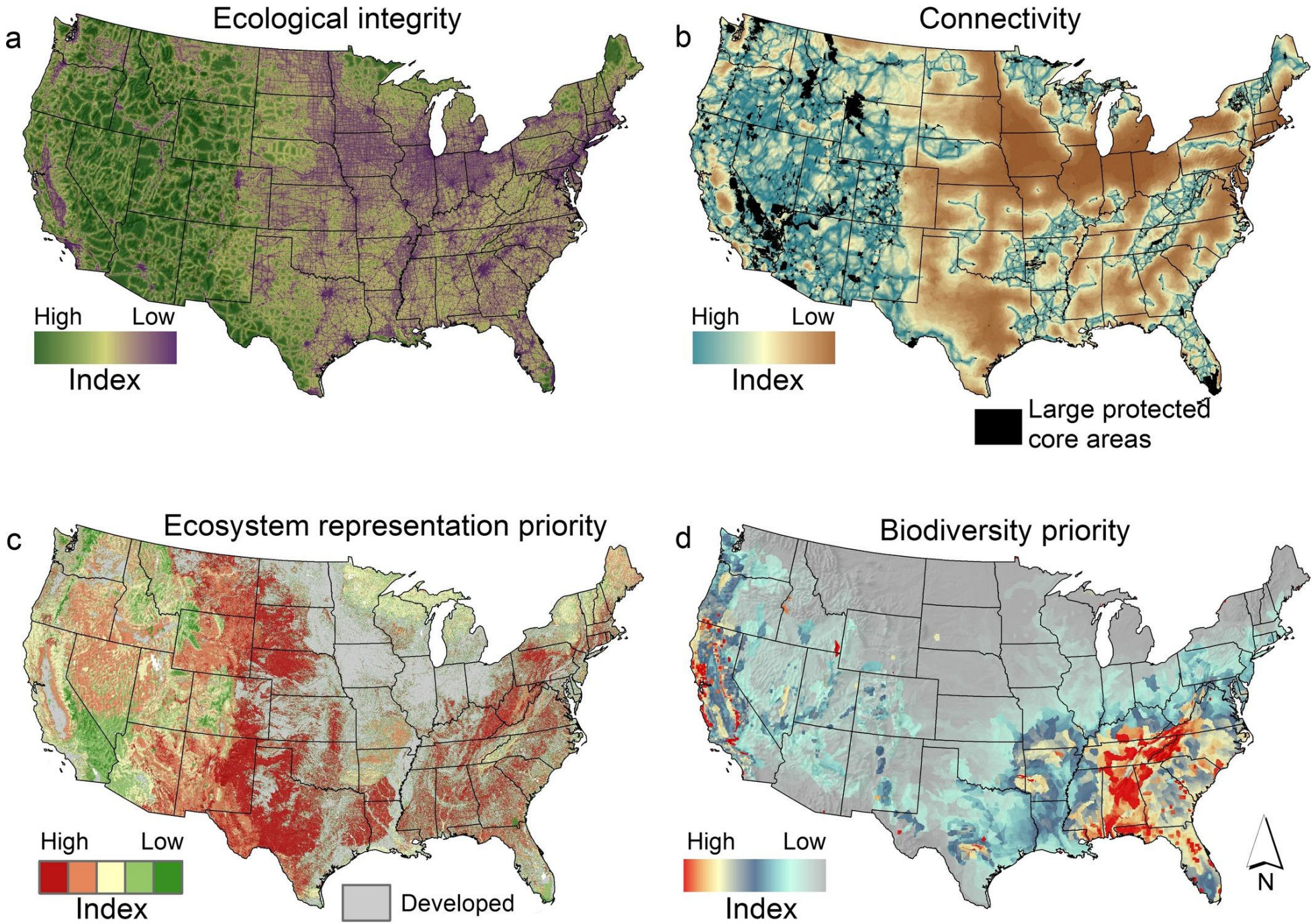


Global conservation priorities

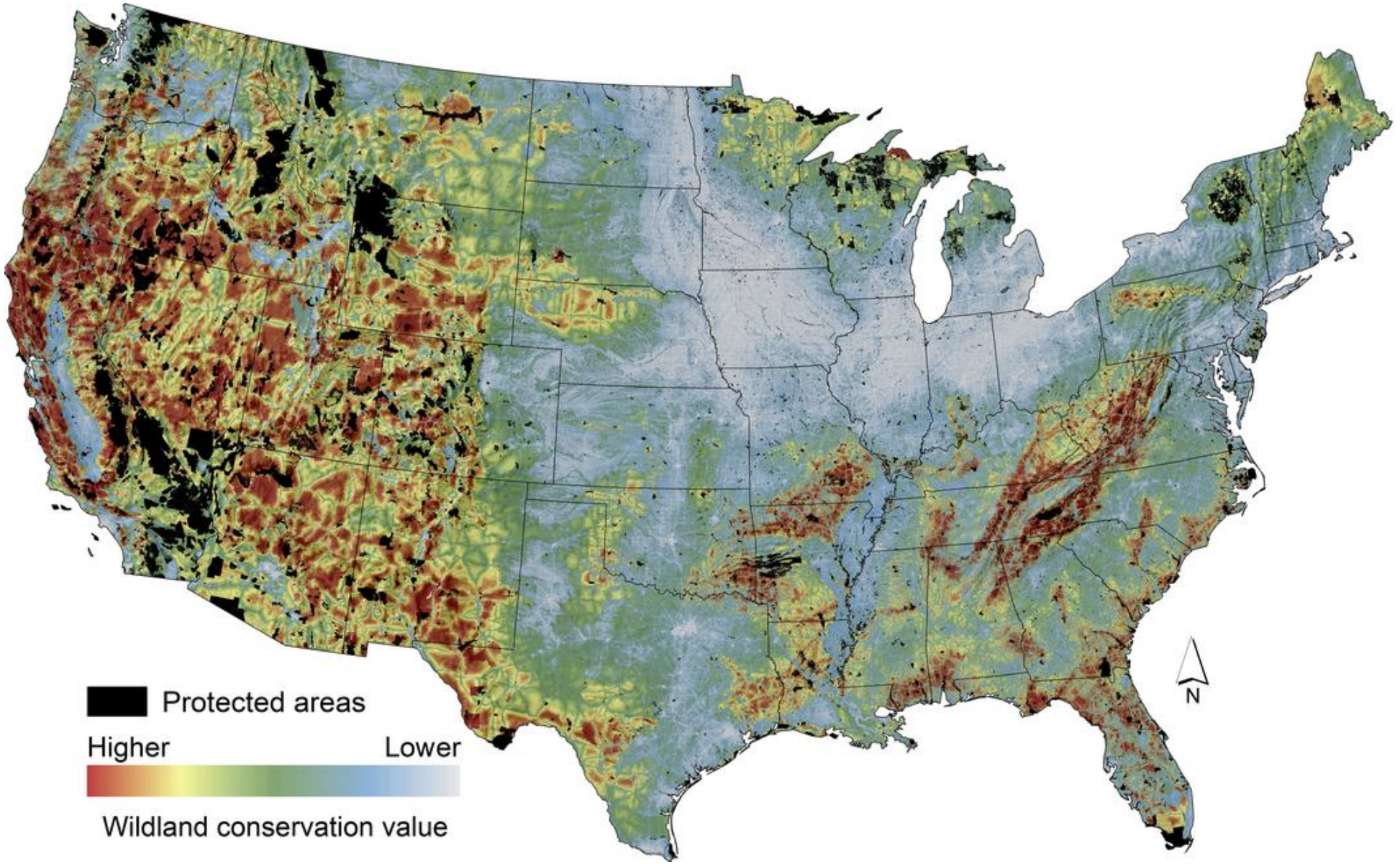
Target 1. …***[retain] ecosystems of high ecological integrity***

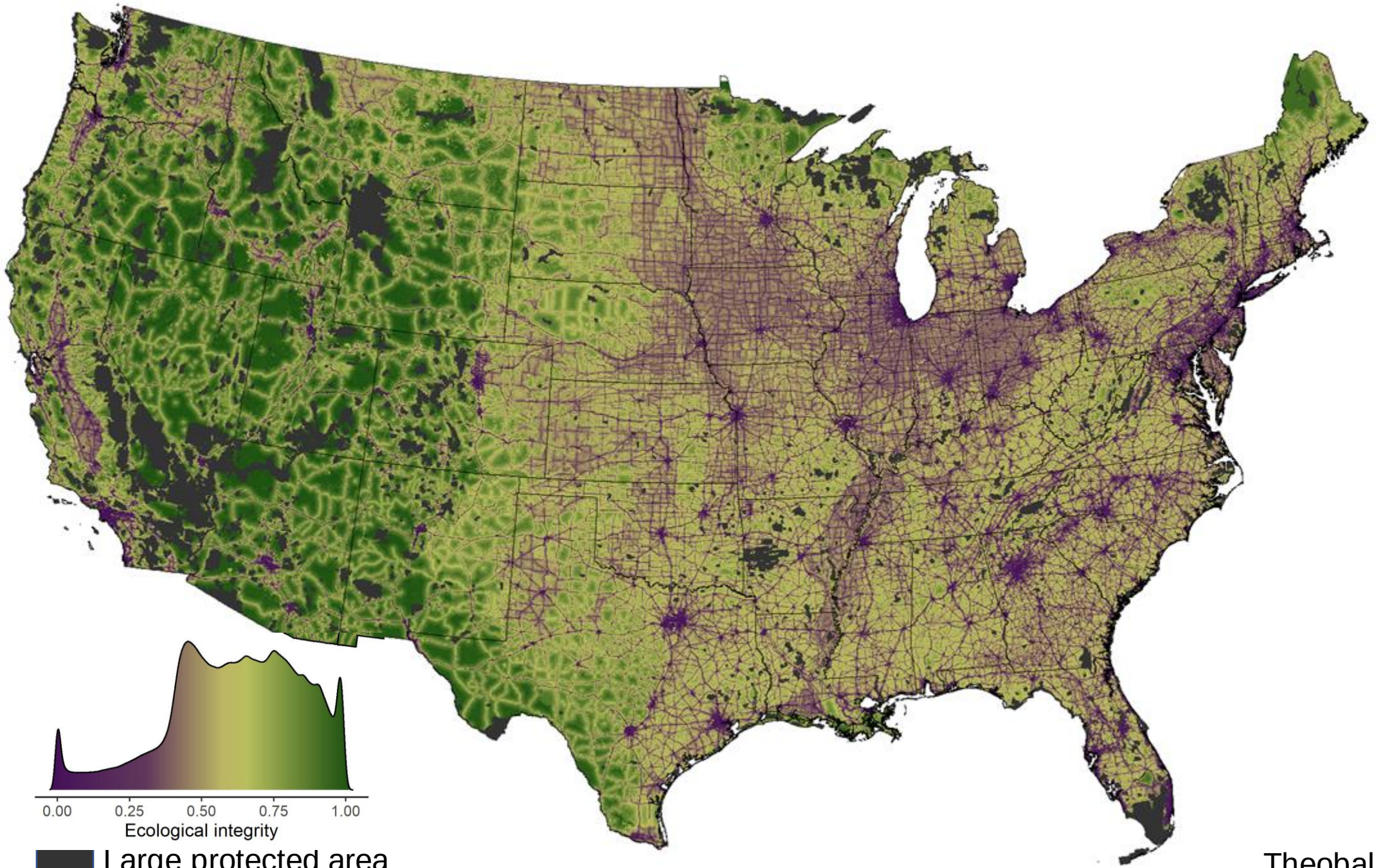
Target 3. Ensure that at least 30 per cent of land areas, especially areas of particular ***importance for biodiversity*** are conserved through ***ecologically representative and well-connected systems of protected areas*** and integrated into wider landscapes.

Convention on Biological Diversity

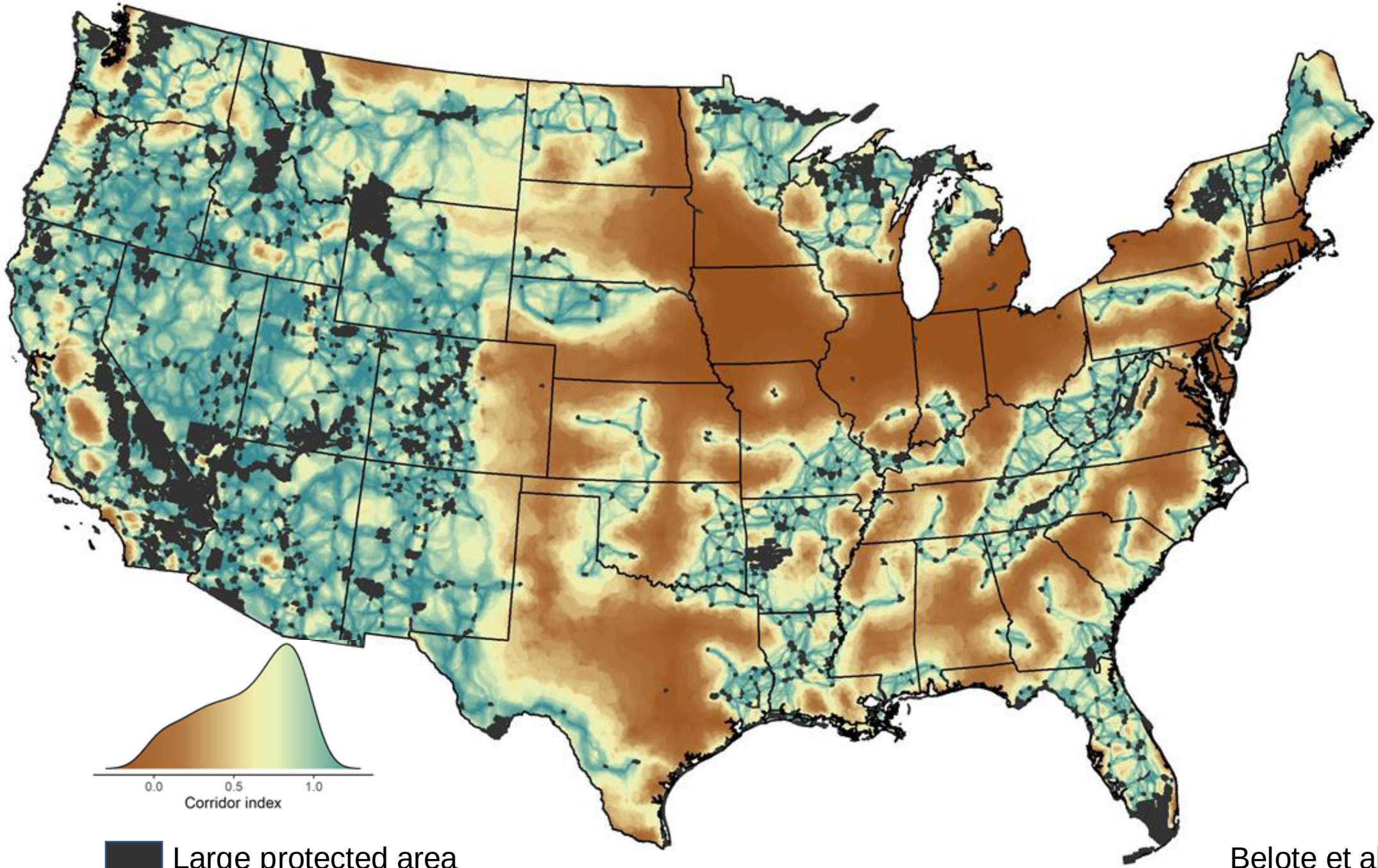

a
Ecological integrity
High
Low
Index
b
Connectivity
High
Low
Index
Large protected
core areas
c
Ecosystem representation priority
High
Low
Index
Developed
d
Biodiversity priority
High
Low
Index
N

representative and connected system of protected areas?



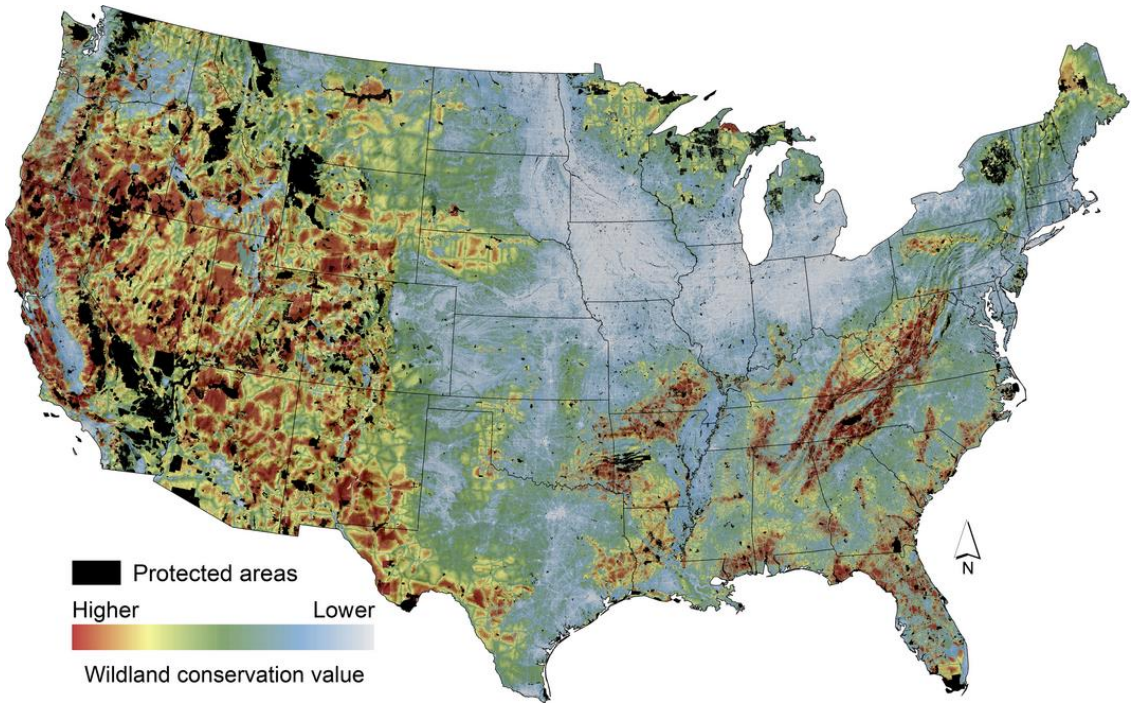


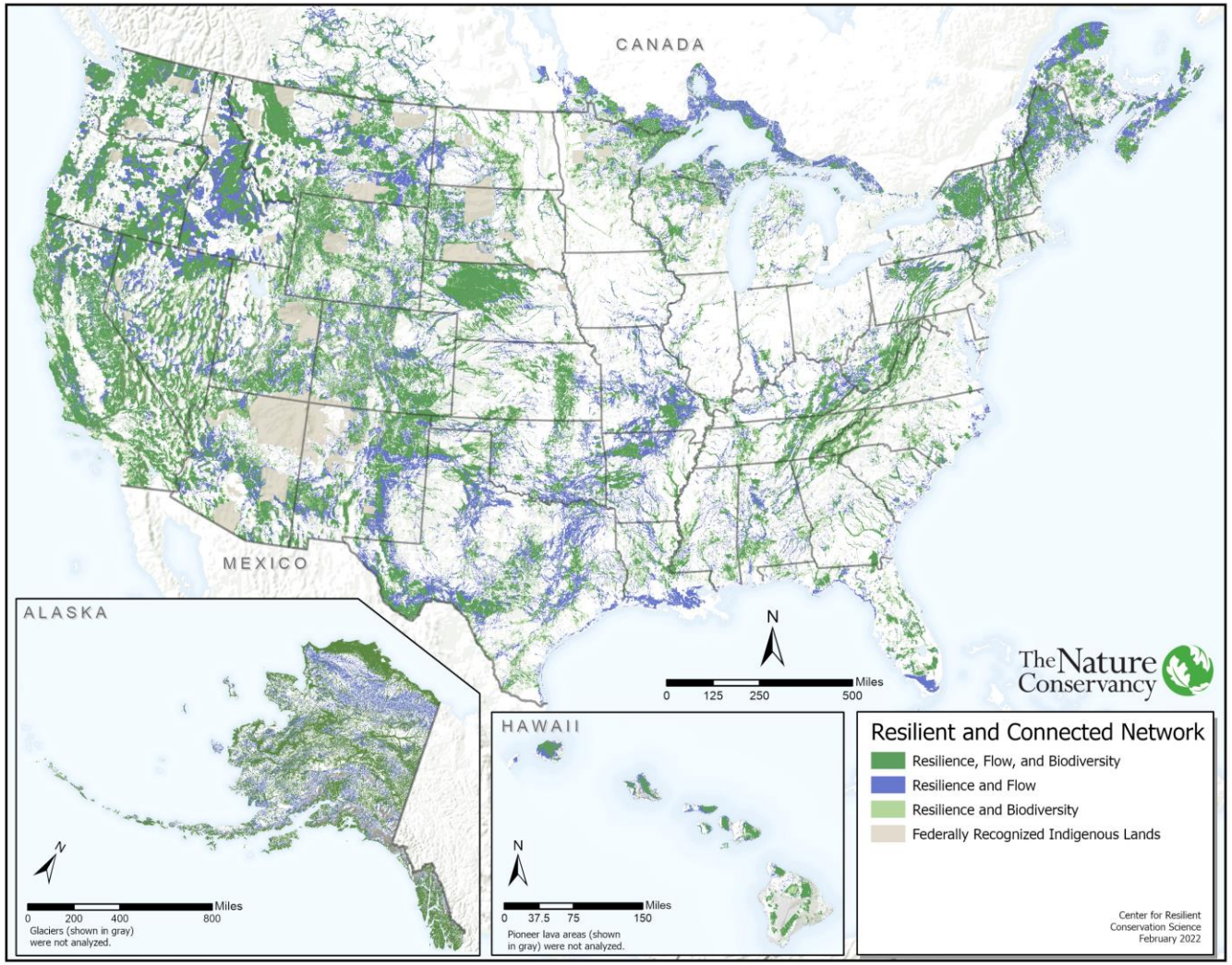
Theobald 2013



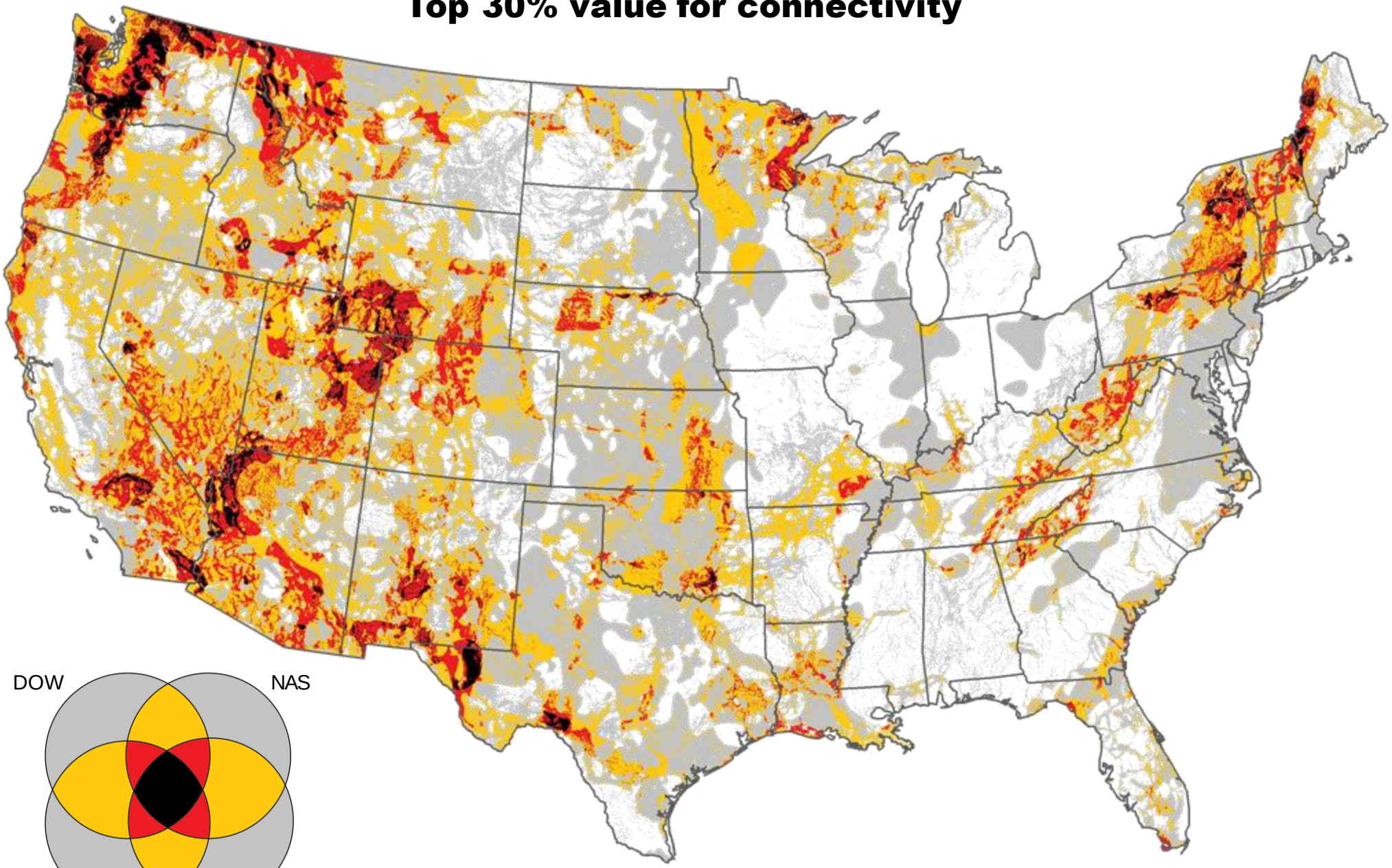
Belote et al. 2016

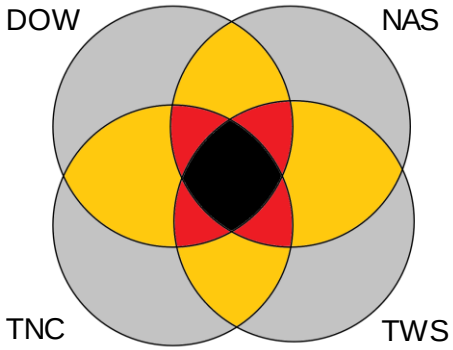
Many maps of conservation importance



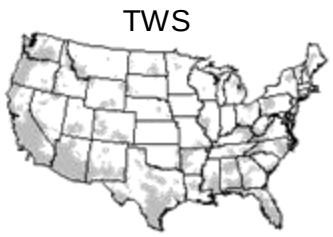


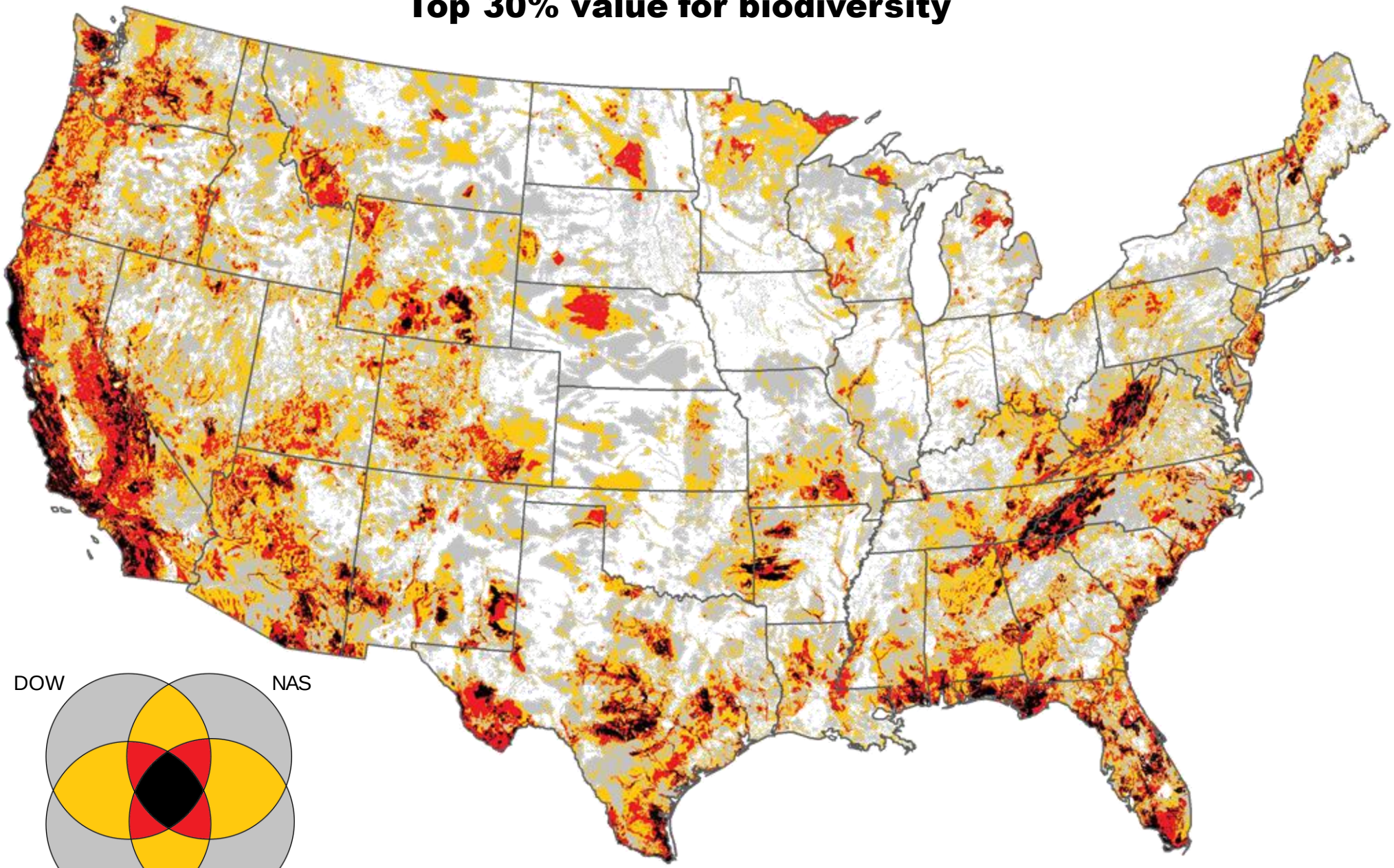
Top 30% value for connectivity

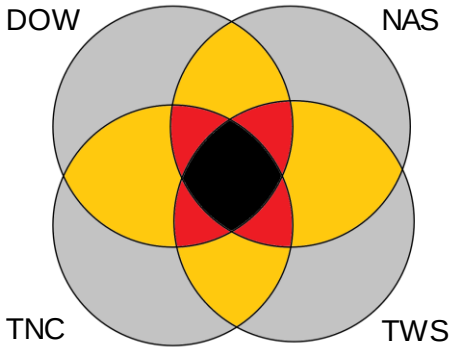




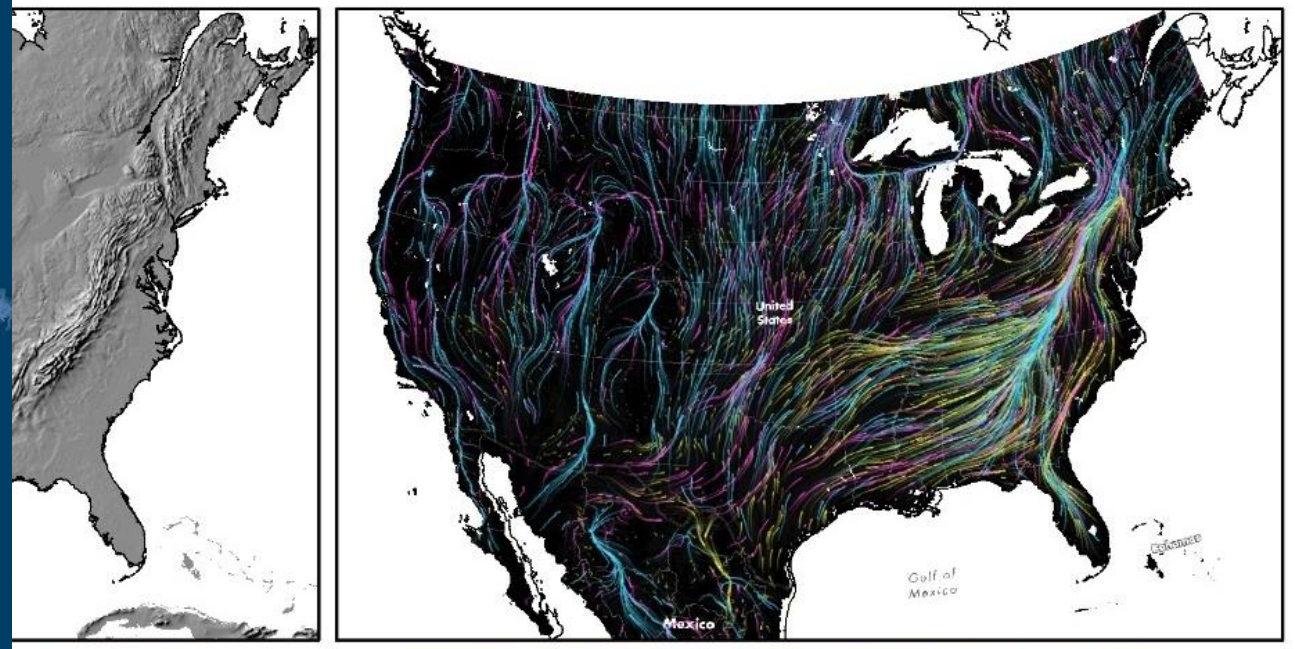
Top 30% value for biodiversity



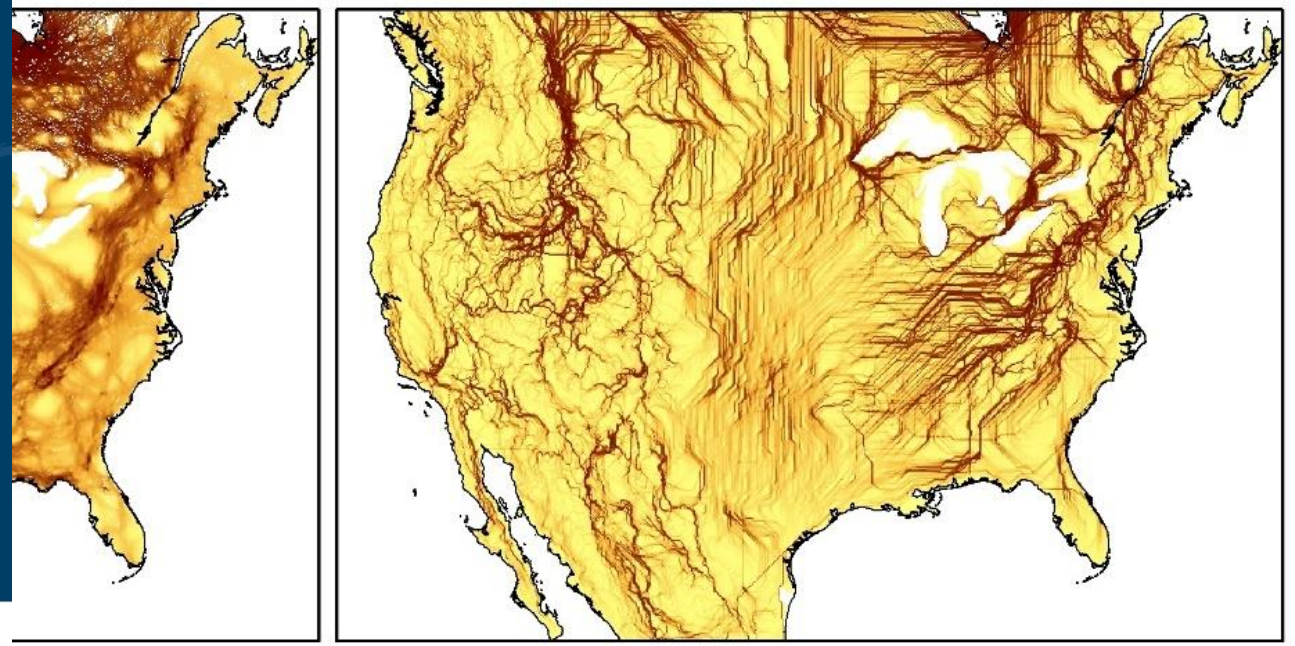




NATIONAL GEOGRAPHIC
Copyright 2022. Used with permission by National Geographic.



Migrations in motions, based on Lawler et al. 2013



Climate analog movements, Carroll et al. 2018

High
Connectivity importance

Received: 3 July 2021 | Revised: 1 November 2021 | Accepted: 8 November 2021

DOI: 10.1111/csp2.588

Conservation Science and Practice
A Journal of the Society for Conservation Biology
Open Access

WILEY

PERSPECTIVE

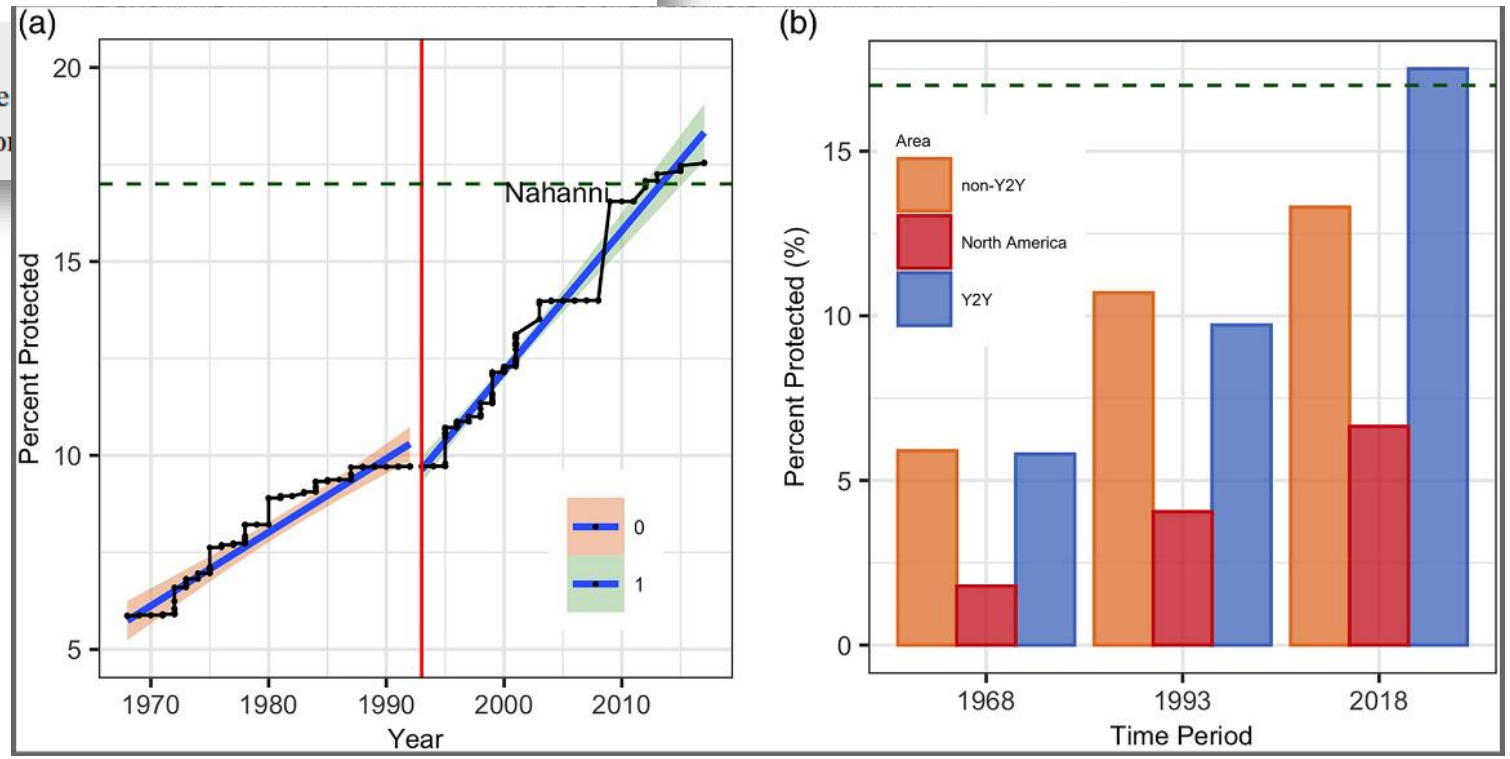
Can a large-landscape conservation vision contribute to achieving biodiversity targets?

Mark Hebblewhite[1] | **Jodi A. Hilty**[2] | **Sara Williams**[1] | **Harvey Locke**[3] | **Charles Chester**[4] | **David Johns**[5] | **Gregory Kehm**[6] | **Wendy L. Francis**[7]

[1]Wildlife Biology Program, Department of Ecosystem and Conservation Sciences, W.A. Franke College of Forestry and Conservation, University of Montana, Missoula, Montana, USA

Abstract

Founded in 1993, the Yellowstone
earliest large-landscape conservatio



buffered trails as corridors?

land

MDPI

Article

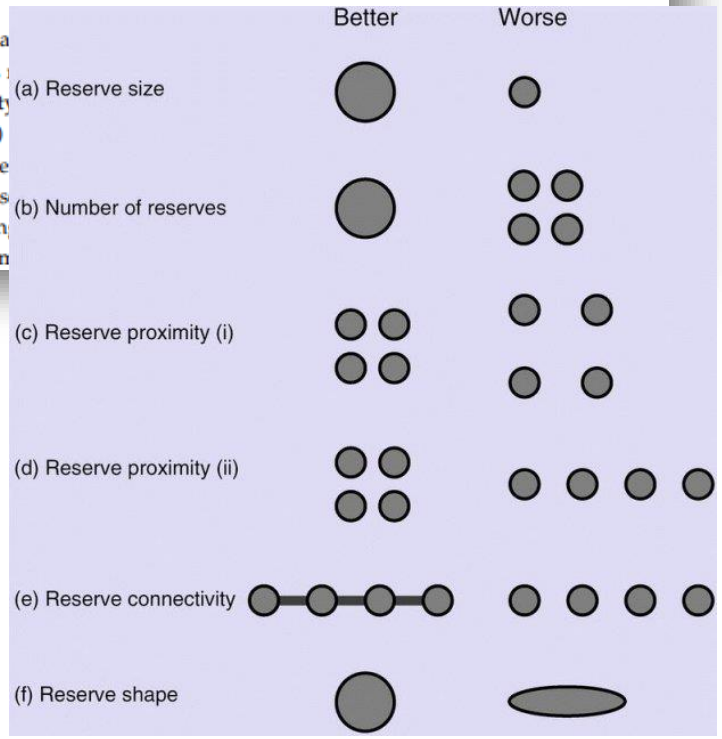
The Value of Trail Corridors for Bold Conservation Planning

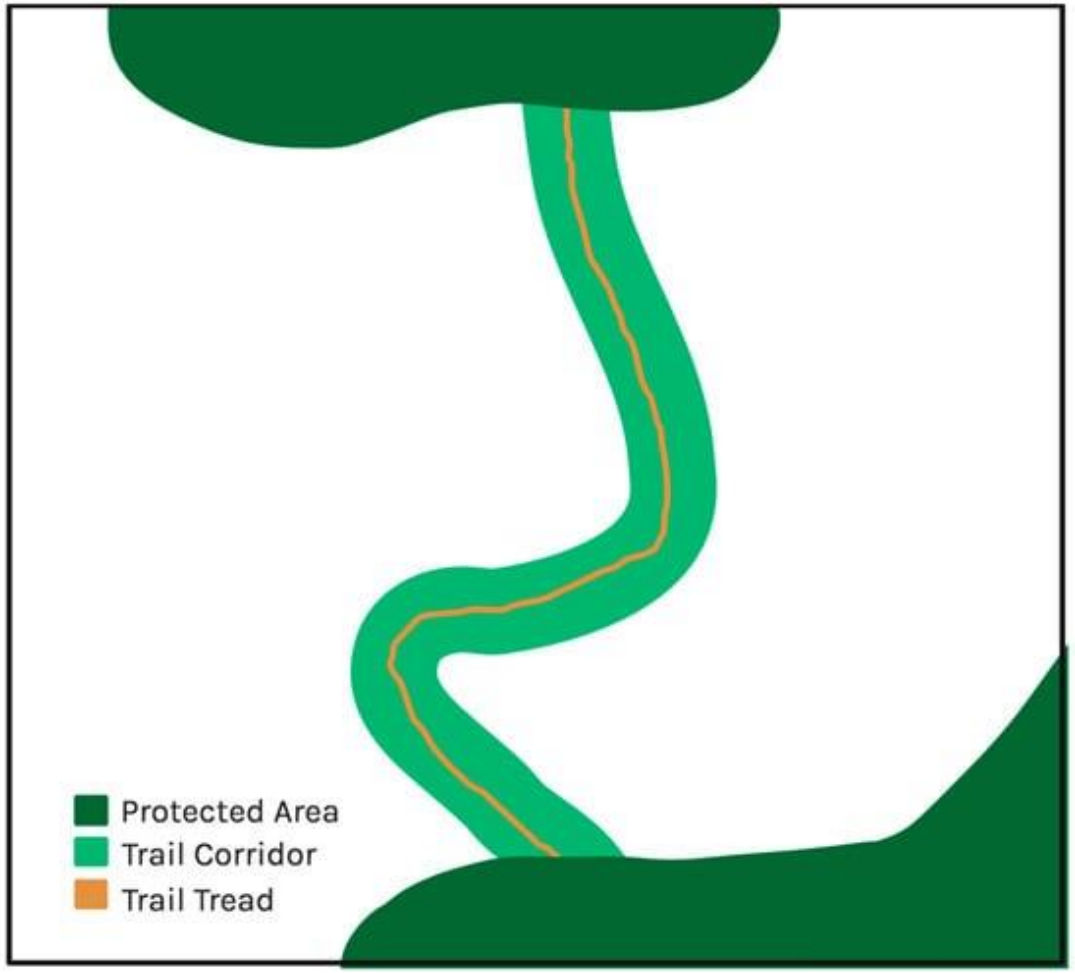
Mel B. Wilson [1,*] and R. Travis Belote [2]

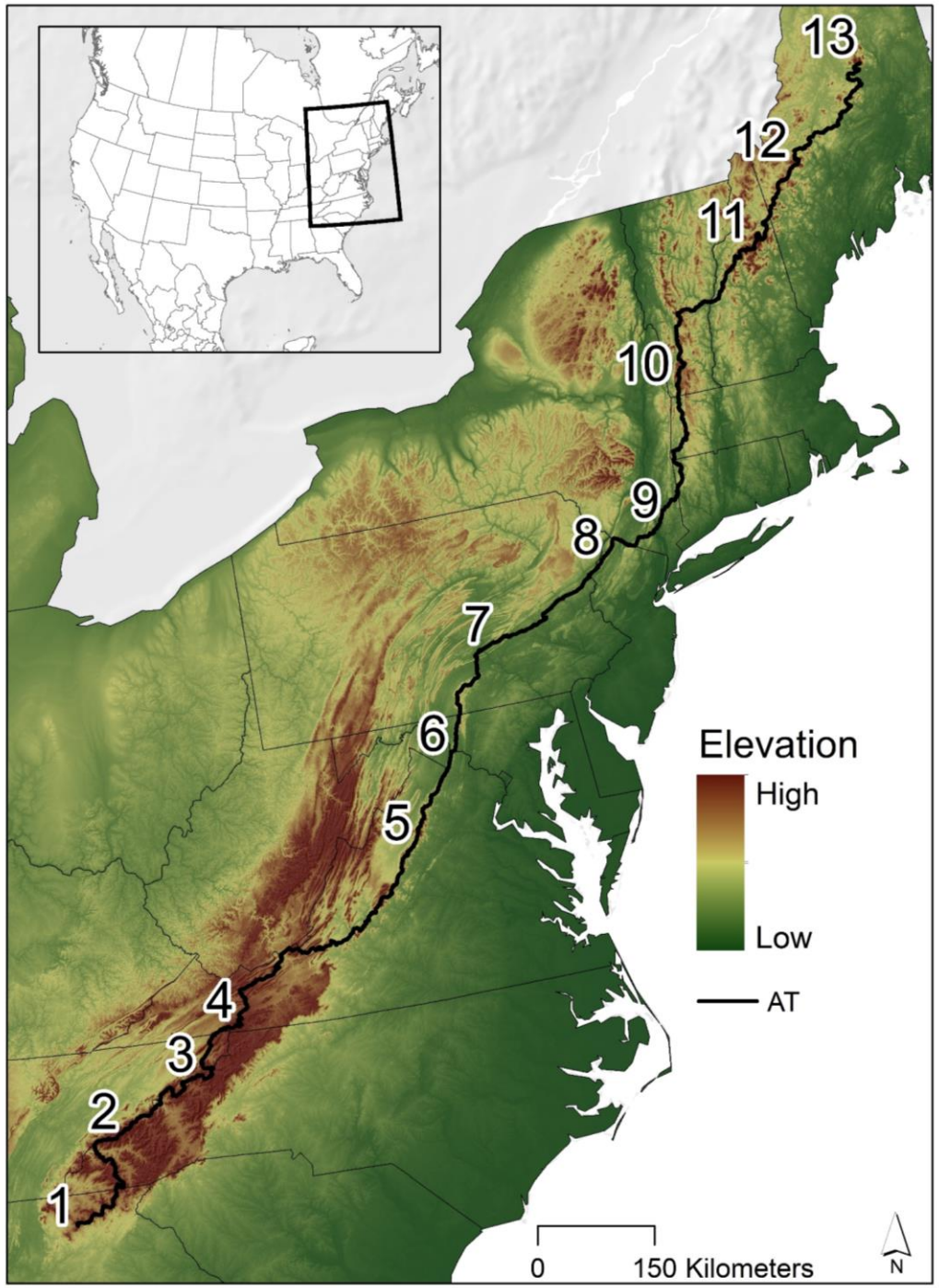
[1] Sustainability Program, Harvard University, Extension School, Cambridge, MA 01238, USA
[2] The Wilderness Society, Bozeman, MT 59715, USA; tbelote@tws.org
* Correspondence: mrw630@g.harvard.edu; Tel.: +1-828-712-8574

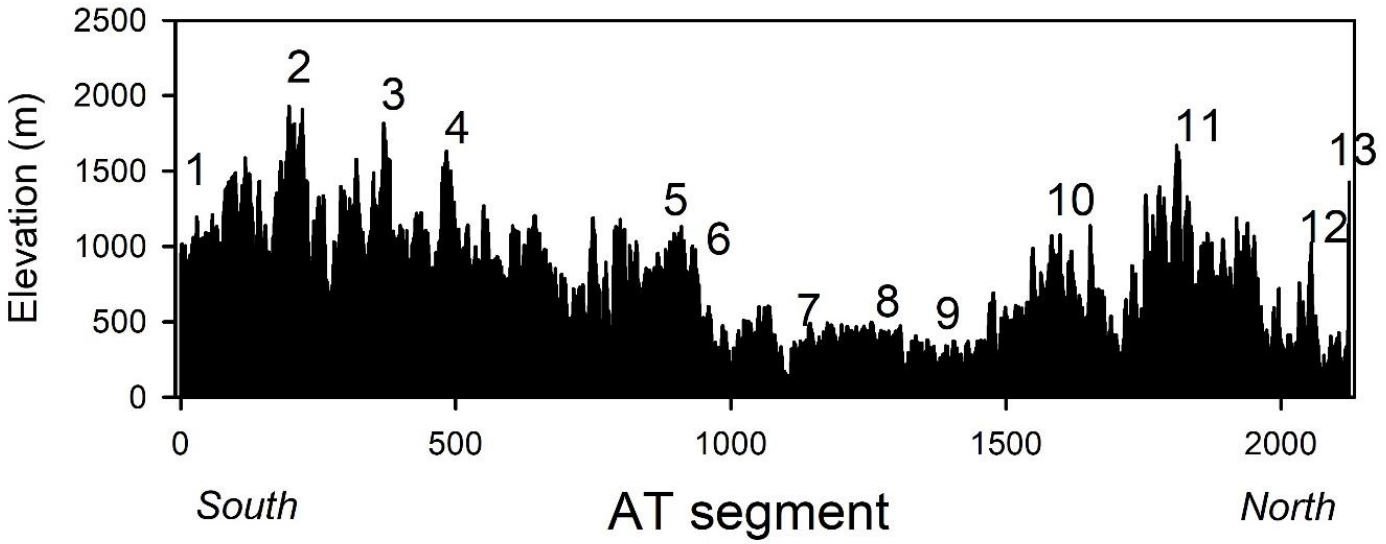
Abstract: Conservationists are ca
A growing number of scientists
network to maintain biodiversity
Continental Divide Trail (CDT)
American West. We evaluated the
orridor and determined the cons
onnect 95 protected areas creatin
CT and CDT corridors follow n

Mel Wilson Wilder









1 = Springer Mountain
2 = Great Smoky Mountains NP
3 = Roan Mountain
4 = Mt. Rogers
5 = Shenandoah NP
6 = Harpers Ferry
7 = Susquehanna River
8 = Delaware Gap
9 = Hudson River
10 = Green Mountains
11 = White Mountains
12 = Maine's 100 mile wilderness
13 = Mt. Katahdin

Received: 11 October 2018 | Revised: 8 March 2019 | Accepted: 9 March 2019
DOI: 10.1111/csp2.30

CONTRIBUTED PAPER

Conservation Science and Practice
WILEY

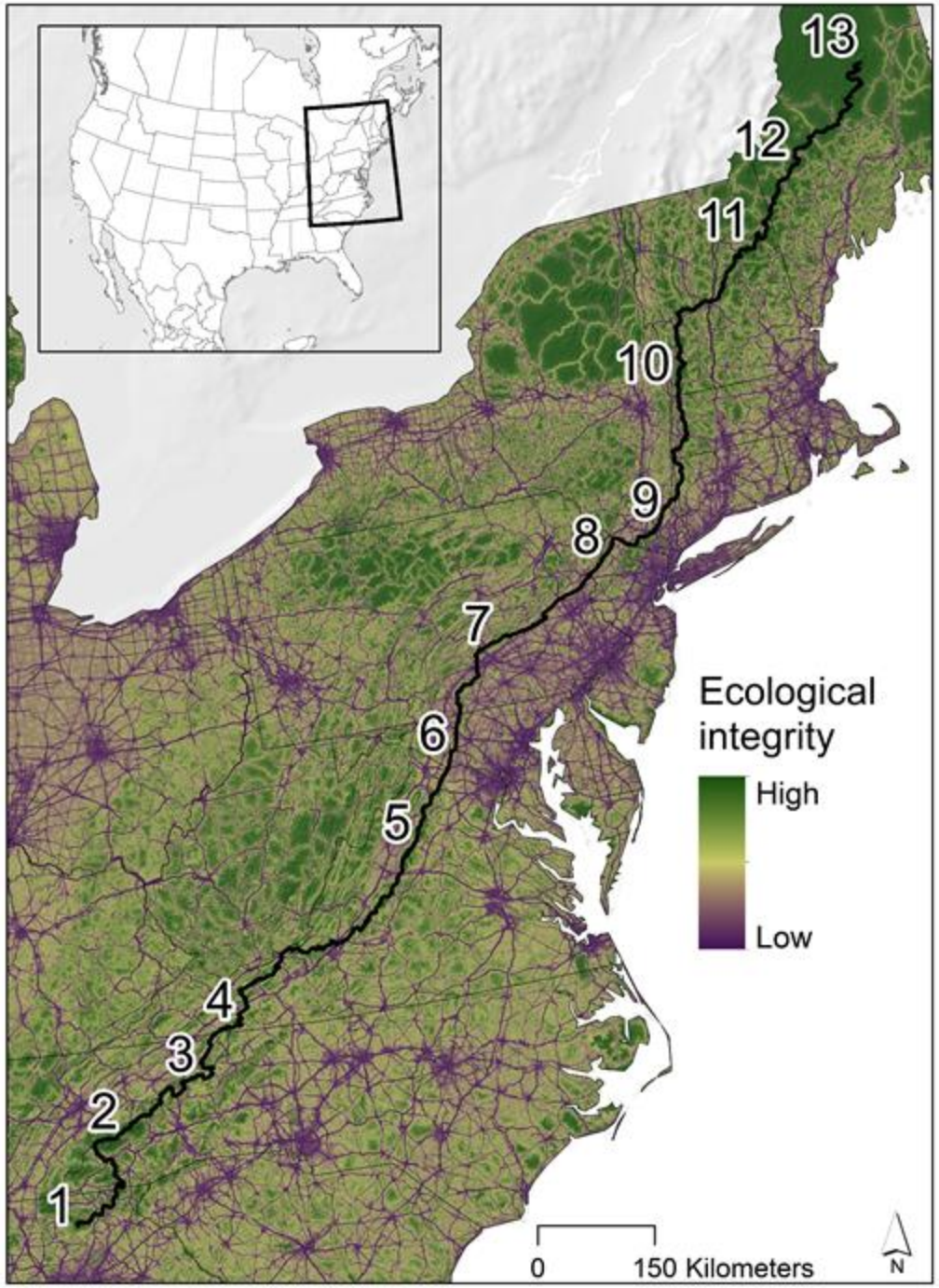
An assessment of ecological values and conservation gaps in protection beyond the corridor of the Appalachian Trail

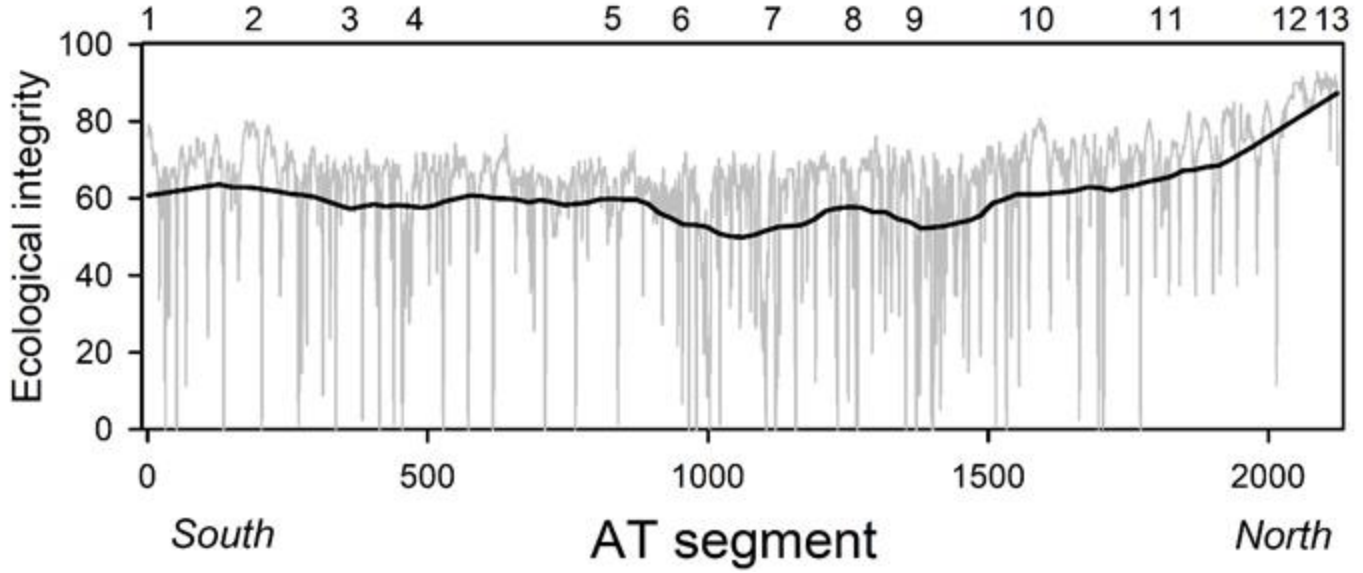
Peter S. McKinley[1] | **R. Travis Belote**[2] | **Gregory H. Aplet**[3]

[1]The Wilderness Society, Hallowell, Maine
[2]The Wilderness Society, Bozeman, Montana
[3]The Wilderness Society, Denver, Colorado

Correspondence
Peter S. McKinley, The Wilderness Society, 9 Union Street, Hallowell, ME 04347.
Email: peter_mckinley@tws.org

Abstract
The Appalachian Trail (AT) traverses the Appalachian Mountains across 11 degrees of latitude from Springer Mountain in Georgia to Maine's Mt. Katahdin. The 3,524 km (2,190-mile) long trail is buffered within a conserved corridor that is at least ~ 305 m wide and covers approximately 101,000 hectacres (250,000 acres) overseen by the National Park Service (NPS), making it one of the largest NPS units in the East. Although a continuous marked trail has been established since 1937, protection of the corridor was not complete until the last couple of decades.





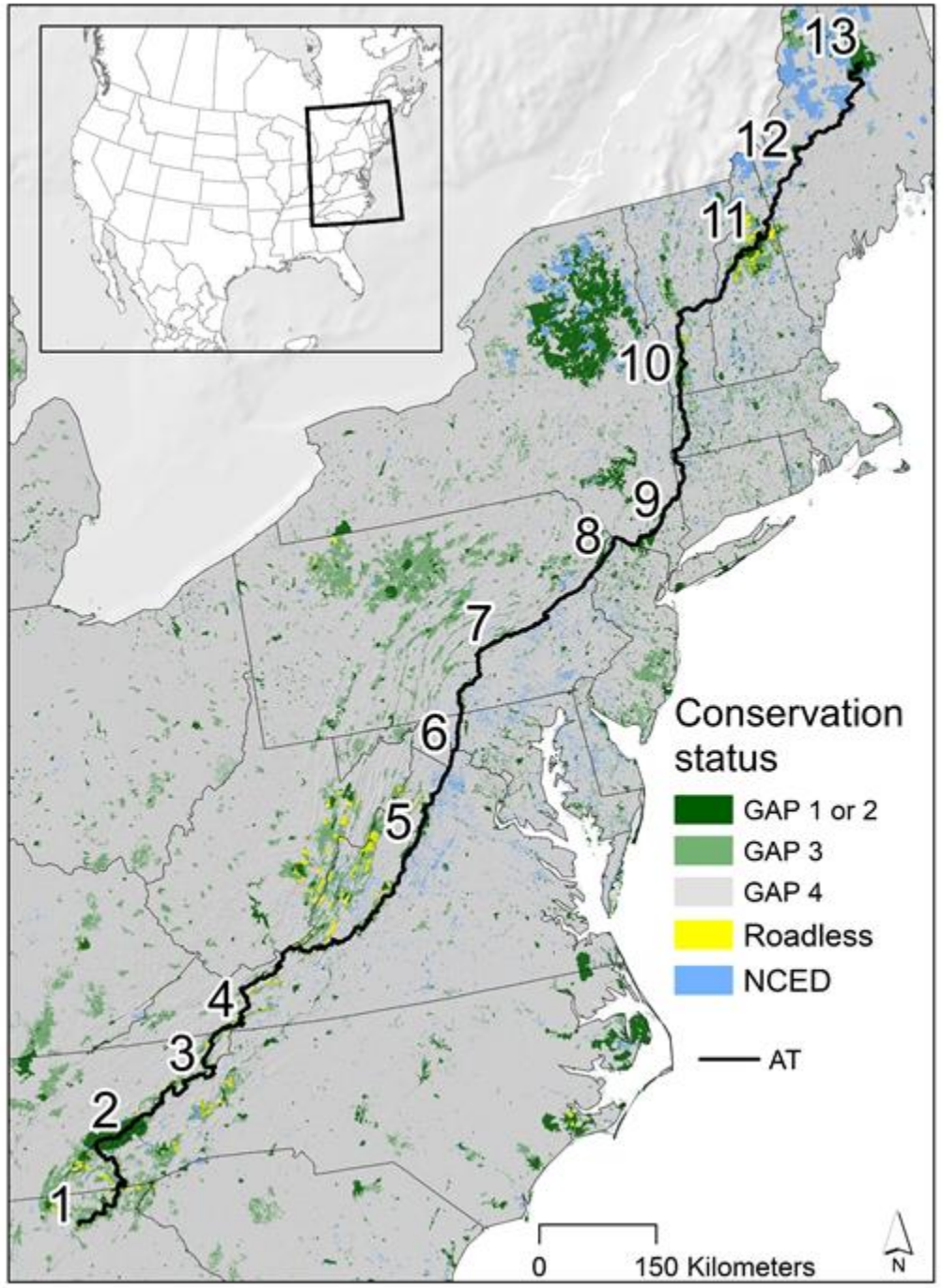
Conservation Biology

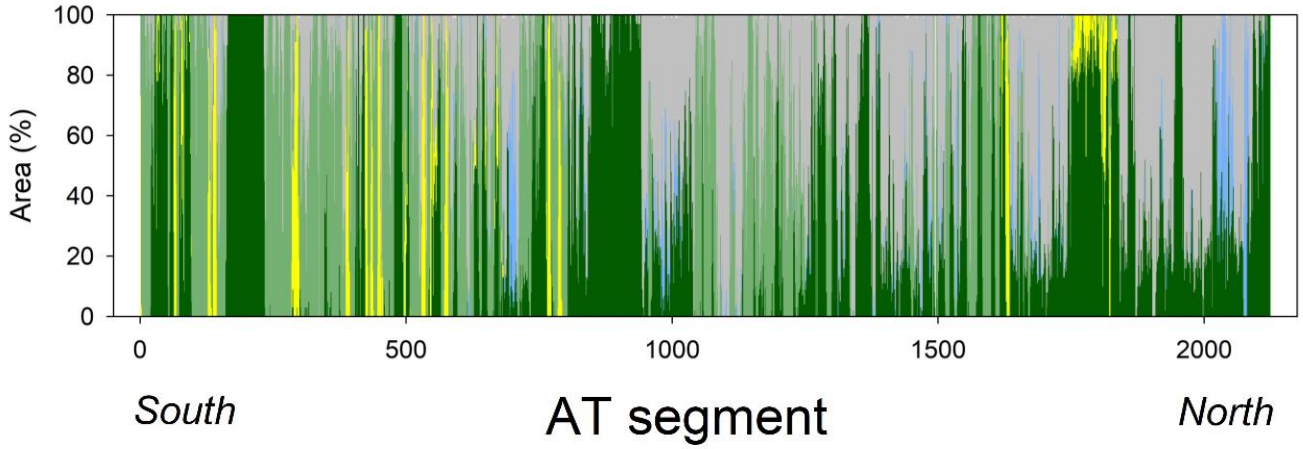
Diversity

A rule of thumb for widths of conservation corridors

Paul Beier

Northern Arizona University, Flagstaff, AZ 86011, U.S.A.





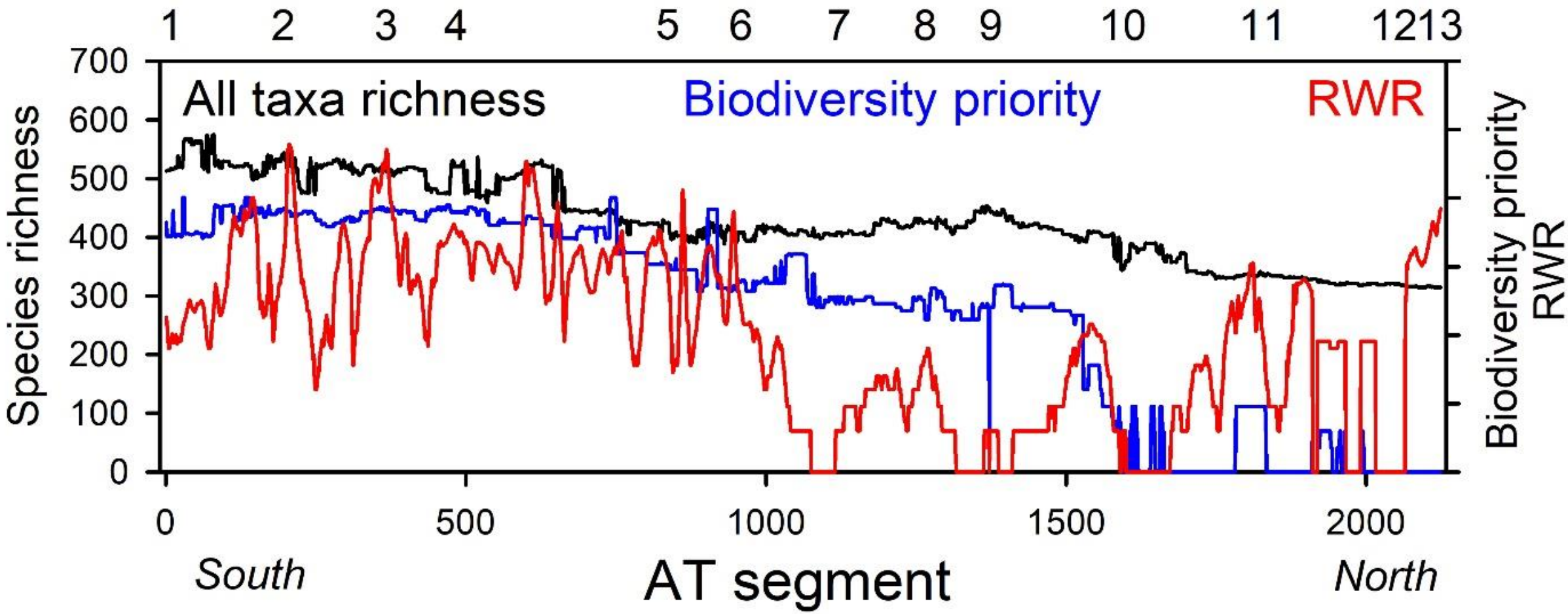
Conservation Biology

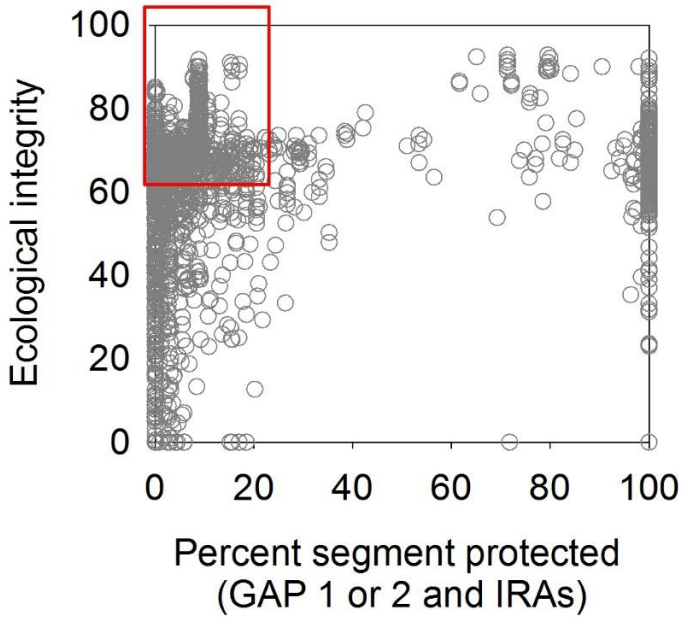
Diversity

A rule of thumb for widths of conservation corridors

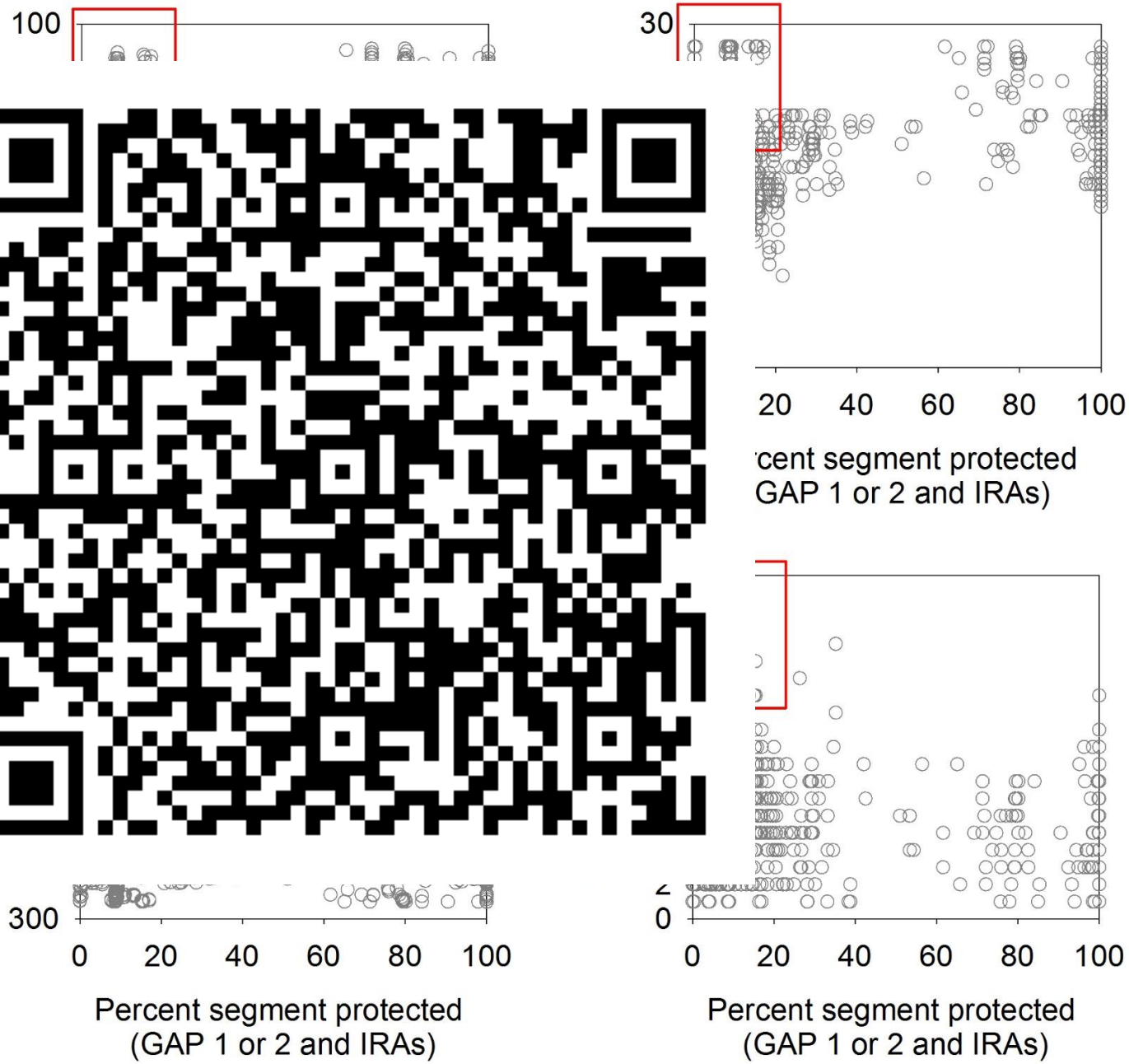
Paul Beier

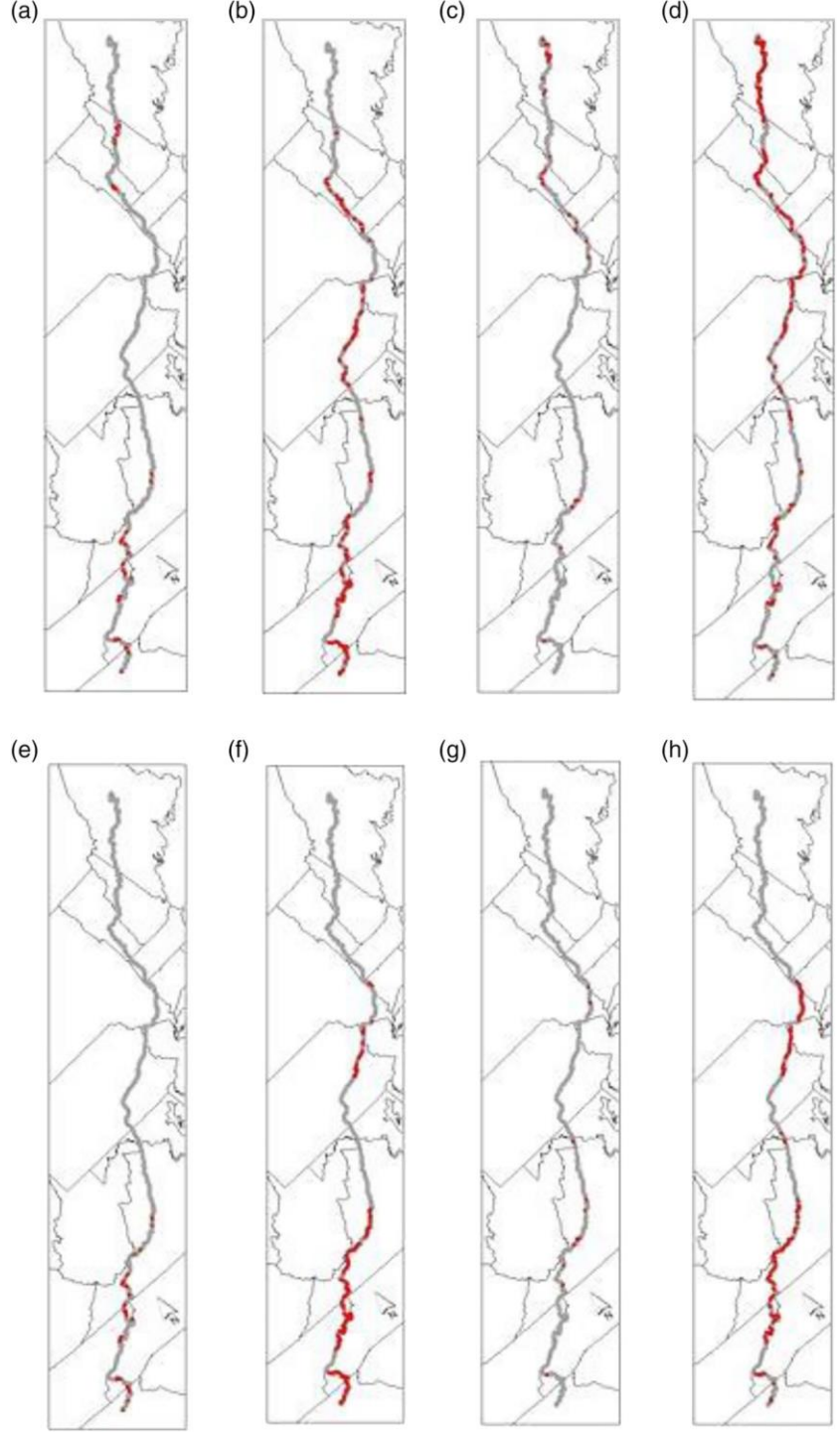
Northern Arizona University, Flagstaff, AZ 86011, U.S.A.


1
2
3
4
5
6
7
8
9
10
11
1213
All taxa richness
Biodiversity priority
RWR
Species richness
Biodiversity priority
RWR
700
600
500
400
300
200
100
0
0
500
1000
1500
2000
South
AT segment
North


Ecological integrity
100
80
60
40
20
0
0
20
40
60
80
100
Percent segment protected
(GAP 1 or 2 and IRAs)

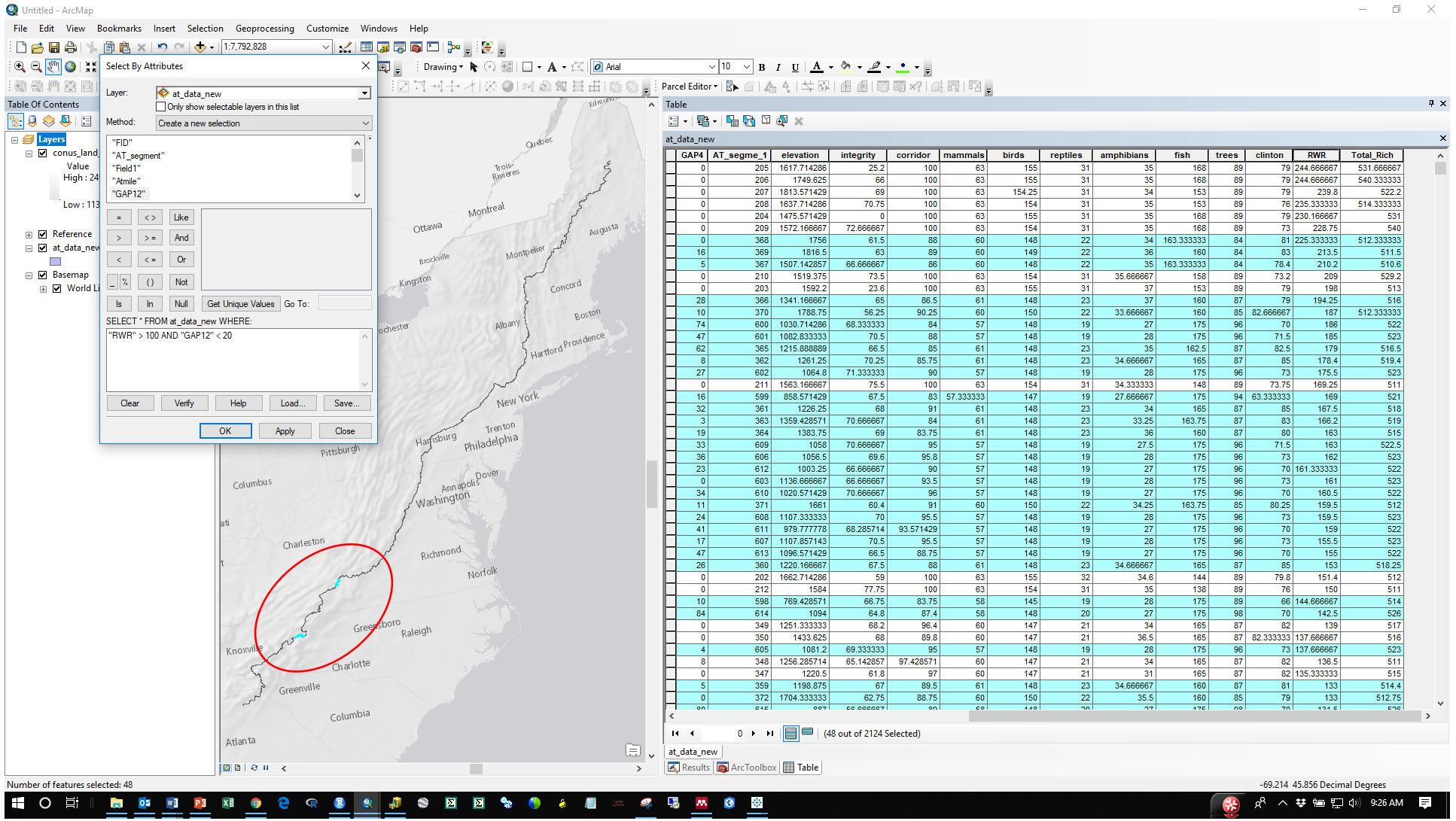
(a)


100
300
0
20
40
60
80
100
Percent segment protected
(GAP 1 or 2 and IRAs)
30
0
20
40
60
80
100
cent segment protected
GAP 1 or 2 and IRAs)
Percent segment protected
(GAP 1 or 2 and IRAs)


(a)
(b)
(c)
(d)
(e)
(f)
(g)
(h)

Select By Attribute

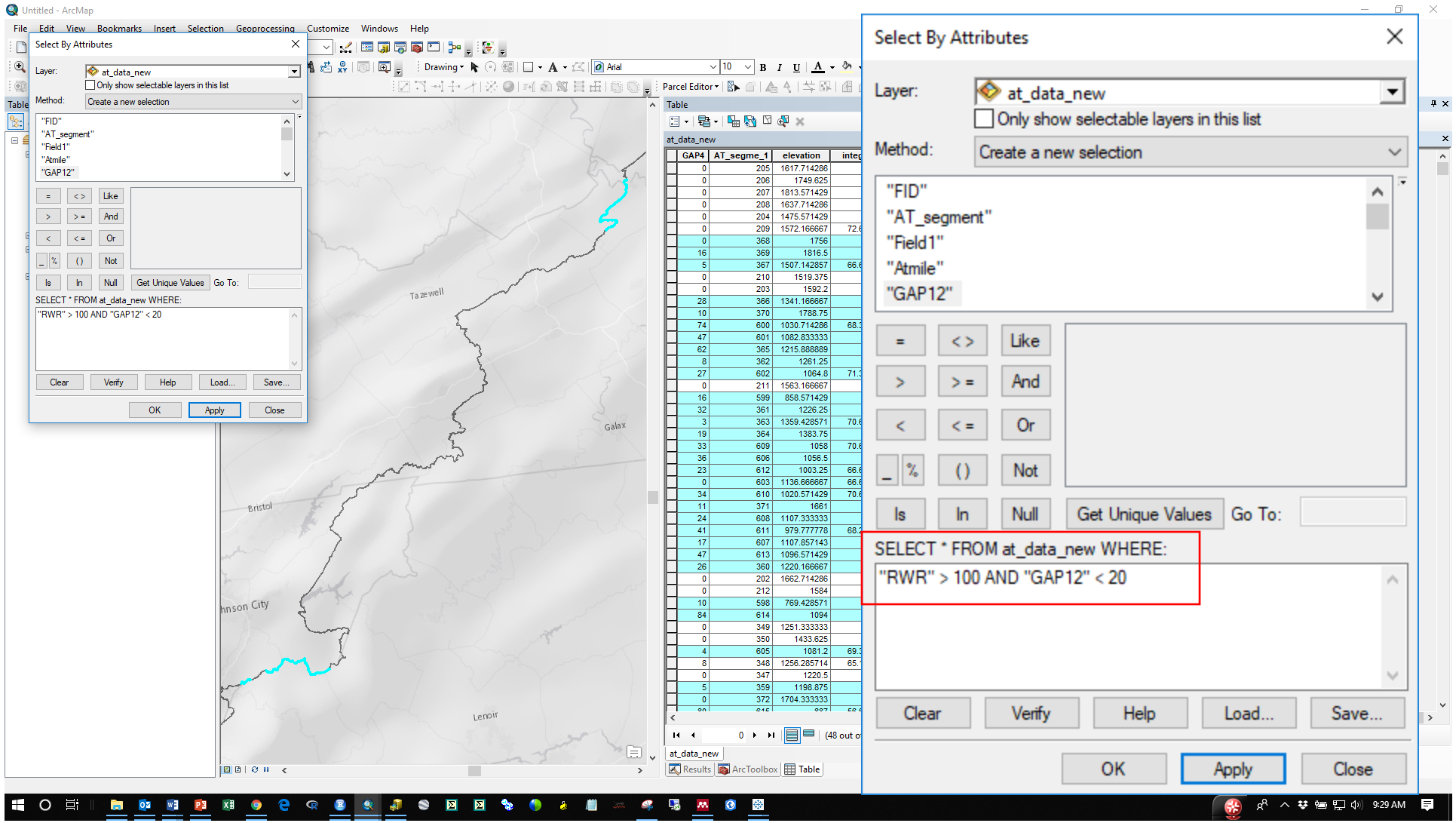
Multiple criteria to select (i.e., identify) places that are high value but not well



GAP4	AT_segme_1	elevation	integrity	corridor	mammals	birds	reptiles	amphibians	fish	trees	clinton	RWR	Total_Rich
0	205	1617.714286	25.2	100	63	155	31	35	168	89	79	244.666667	531.666667
0	206	1749.625	66	100	63	155	31	35	168	89	79	244.666667	540.333333
0	207	1813.571429	69	100	63	154.25	31	34	153	89	79	239.8	522.2
0	208	1637.714286	70.75	100	63	154	31	35	153	89	76	235.333333	514.333333
0	204	1475.571429	0	100	63	155	31	35	168	89	79	230.166667	531
0	209	1572.166667	72.666667	100	63	154	31	35	168	89	73	228.75	540
0	368	1756	61.5	88	60	148	22	34	163.333333	84	81	225.333333	512.333333
16	369	1816.5	63	89	60	149	22	36	160	84	83	213.5	511.5
5	367	1507.142857	66.666667	86	60	148	22	35	163.333333	84	78.4	210.2	510.6
0	210	1519.375	73.5	100	63	154	31	35.666667	158	89	73.2	209	529.2
0	203	1592.2	23.6	100	63	155	31	37	153	89	79	198	513
28	366	1341.166667	65	86.5	61	148	23	37	160	87	79	194.25	516
10	370	1788.75	56.25	90.25	60	150	22	33.666667	160	85	82.666667	187	512.333333
74	600	1030.714286	68.333333	84	57	148	19	27	175	96	70	186	522
47	601	1082.833333	70.5	88	57	148	19	28	175	96	71.5	185	523
62	365	1215.888889	66.5	85	61	148	23	35	162.5	87	82.5	179	516.5
8	362	1261.25	70.25	85.75	61	148	23	34.666667	165	87	85	178.4	519.4
27	602	1064.8	71.333333	90	57	148	19	28	175	96	73	175.5	523
0	211	1563.166667	75.5	100	63	154	31	34.333333	148	89	73.75	169.25	511
16	599	858.571429	67.5	83	57.333333	147	19	27.666667	175	94	63.333333	169	521
32	361	1226.25	68	91	61	148	23	34	165	87	85	167.5	518
3	363	1359.428571	70.666667	84	61	148	23	33.25	163.75	87	83	166.2	519
19	364	1383.75	69	83.75	61	148	23	36	160	87	80	163	515
33	609	1058	70.666667	95	57	148	19	27.5	175	96	71.5	163	522.5
36	606	1056.5	69.6	95.8	57	148	19	28	175	96	73	162	523
23	612	1003.25	66.666667	90	57	148	19	27	175	96	70	161.333333	522
0	603	1136.666667	66.666667	93.5	57	148	19	28	175	96	73	161	523
34	610	1020.571429	70.666667	96	57	148	19	27	175	96	70	160.5	522
11	371	1661	60.4	91	60	150	22	34.25	163.75	85	80.25	159.5	512
24	608	1107.333333	70	95.5	57	148	19	28	175	96	73	159.5	523
41	611	979.777778	68.285714	93.571429	57	148	19	27	175	96	70	159	522
17	607	1107.857143	70.5	95.5	57	148	19	28	175	96	73	155.5	523
47	613	1096.571429	66.5	88.75	57	148	19	27	175	96	70	155	522
26	360	1220.166667	67.5	88	61	148	23	34.666667	165	87	85	153	518.25
0	202	1662.714286	59	100	63	155	32	34.6	144	89	79.8	151.4	512
0	212	1584	77.75	100	63	154	31	35	138	89	76	150	511
10	598	769.428571	66.75	83.75	58	145	19	28	175	89	66	144.666667	514
84	614	1094	64.8	87.4	58	148	20	27	175	98	70	142.5	526
0	349	1251.333333	68.2	96.4	60	147	21	34	165	87	82	139	517
0	350	1433.625	68	89.8	60	147	21	36.5	165	87	82.333333	137.666667	516
4	605	1081.2	69.333333	95	57	148	19	28	175	96	73	137.666667	523
8	348	1256.285714	65.142857	97.428571	60	147	21	34	165	87	82	136.5	511
0	347	1220.5	61.8	97	60	147	21	31	165	87	82	135.333333	515
5	359	1198.875	67	89.5	61	148	23	34.666667	160	87	81	133	514.4
0	372	1704.333333	62.75	88.75	60	150	22	35.5	160	85	79	133	512.75

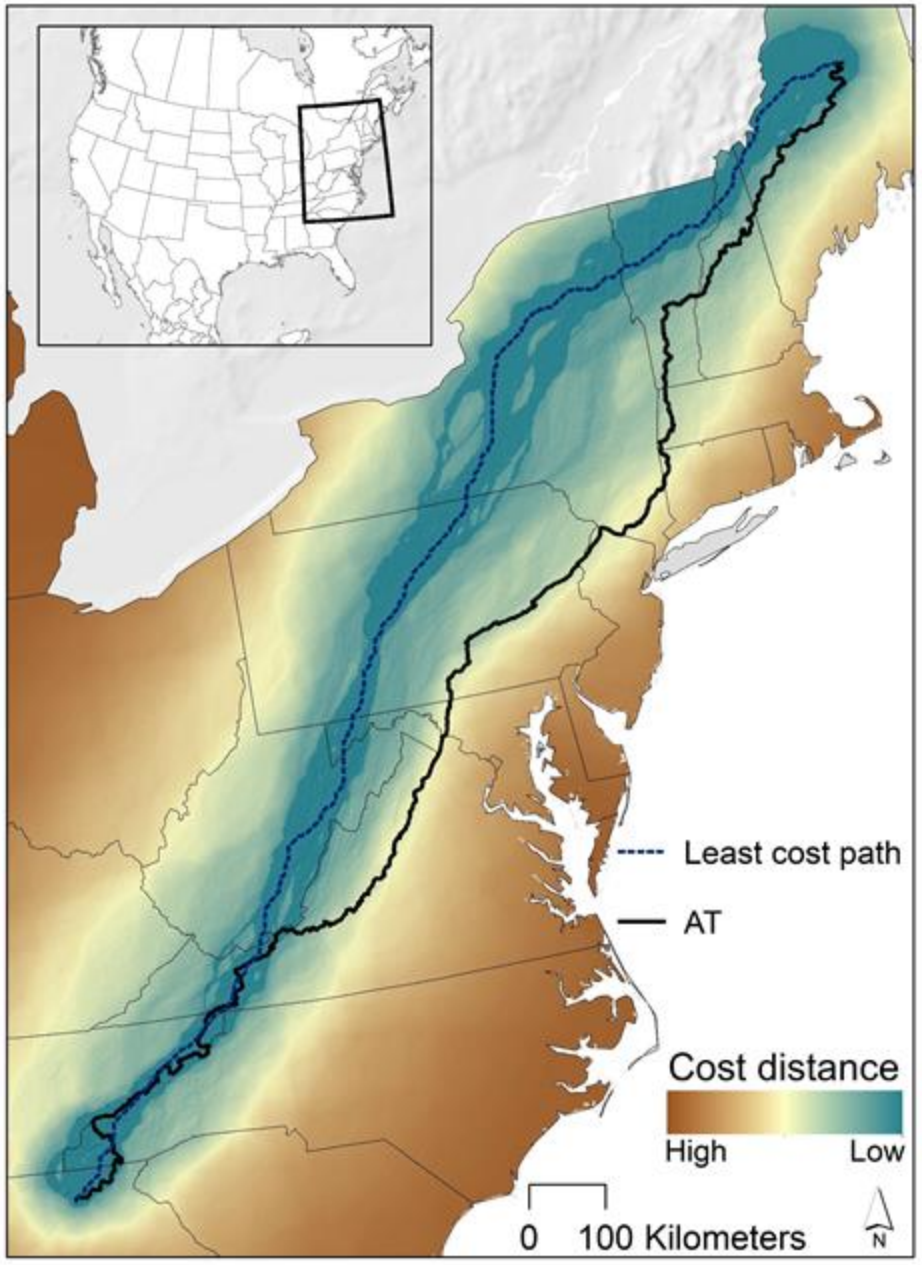
Select By Attribute

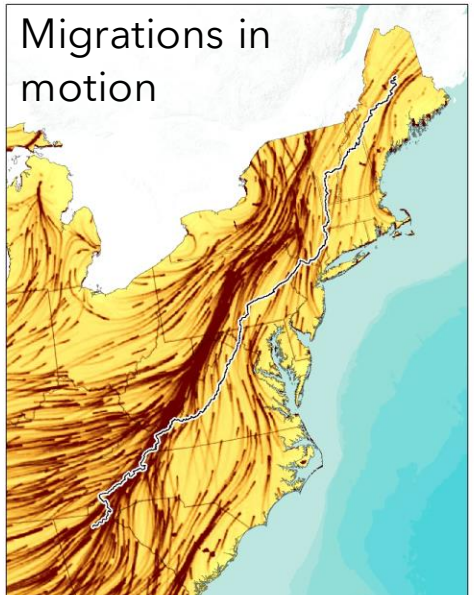
Multiple criteria to select (i.e., identify) places that are high value but not well protected

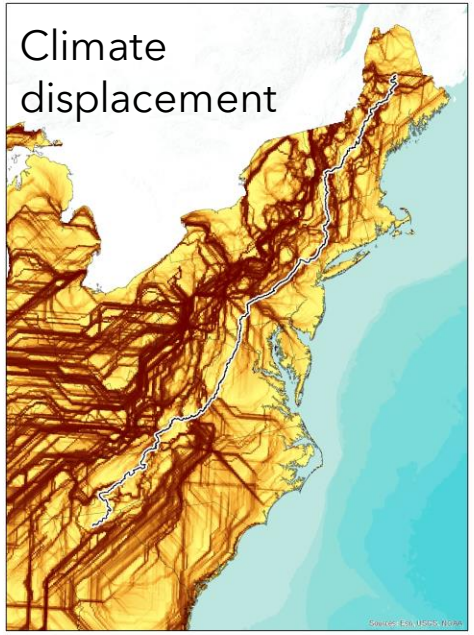


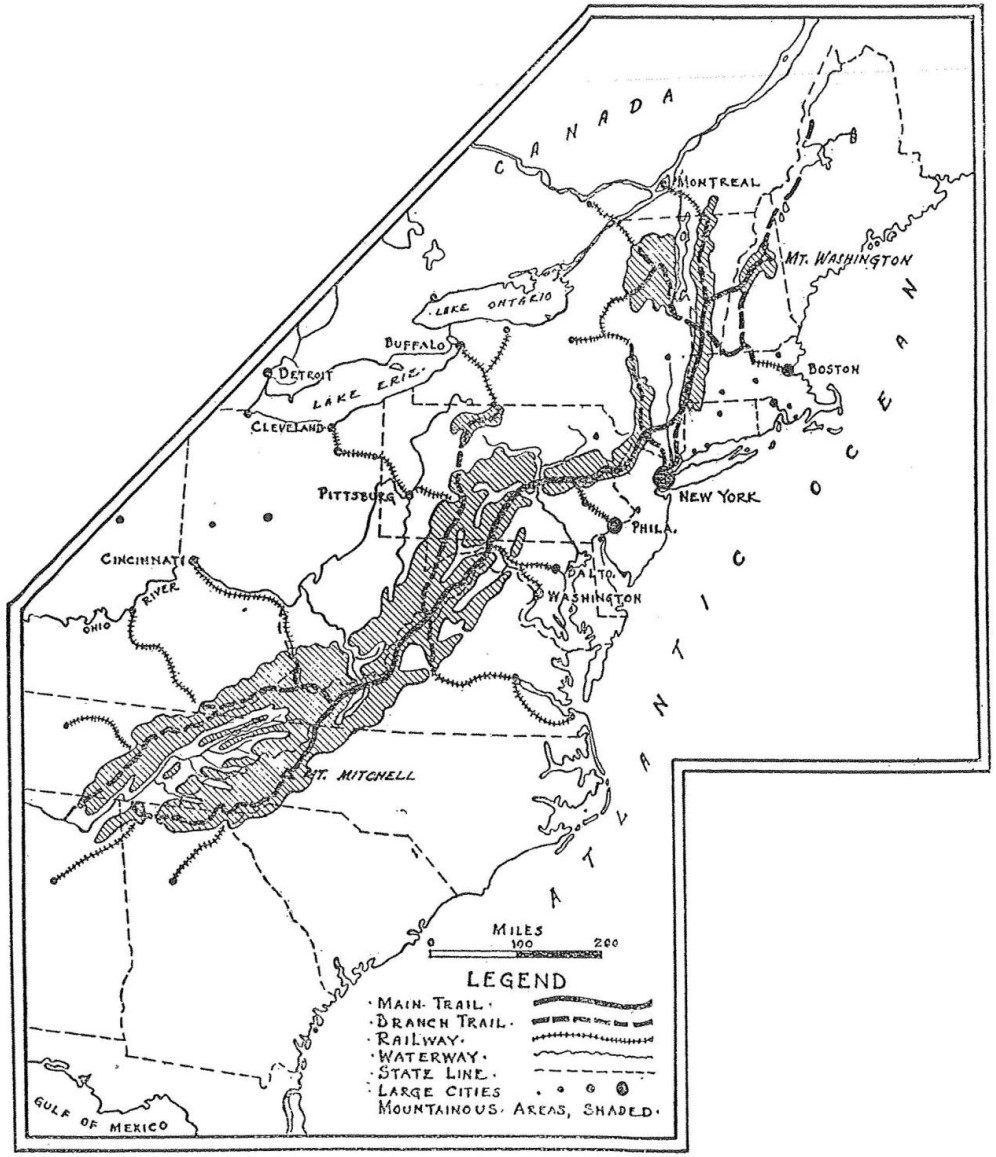
https://public.tableau.com/profile/travis.belote#!/vizhome/DEMOAppalachianTrailValuesandConservationProtectionV1/profilesandmaps?publish=yes

“Most natural linkage”

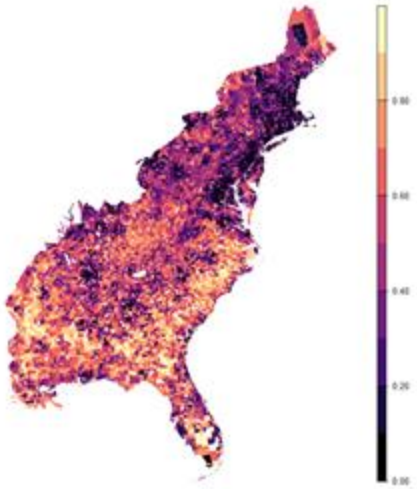


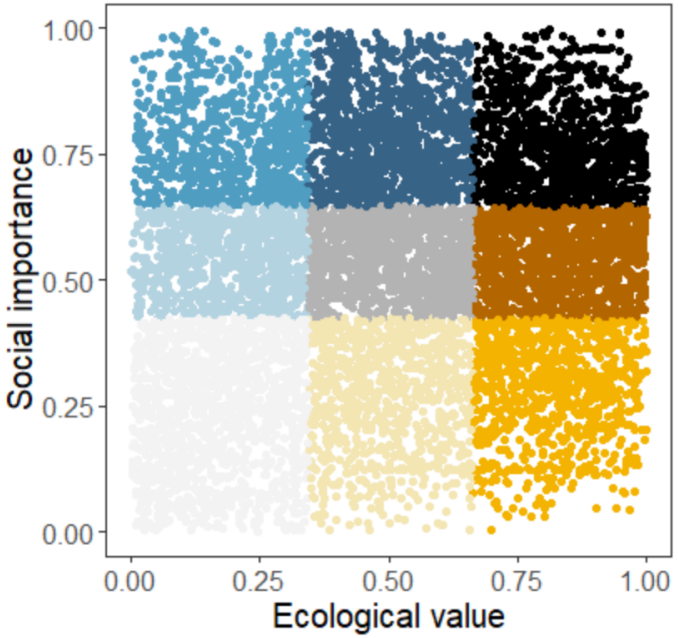


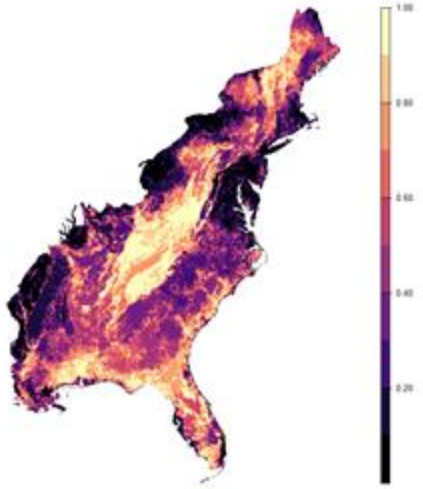


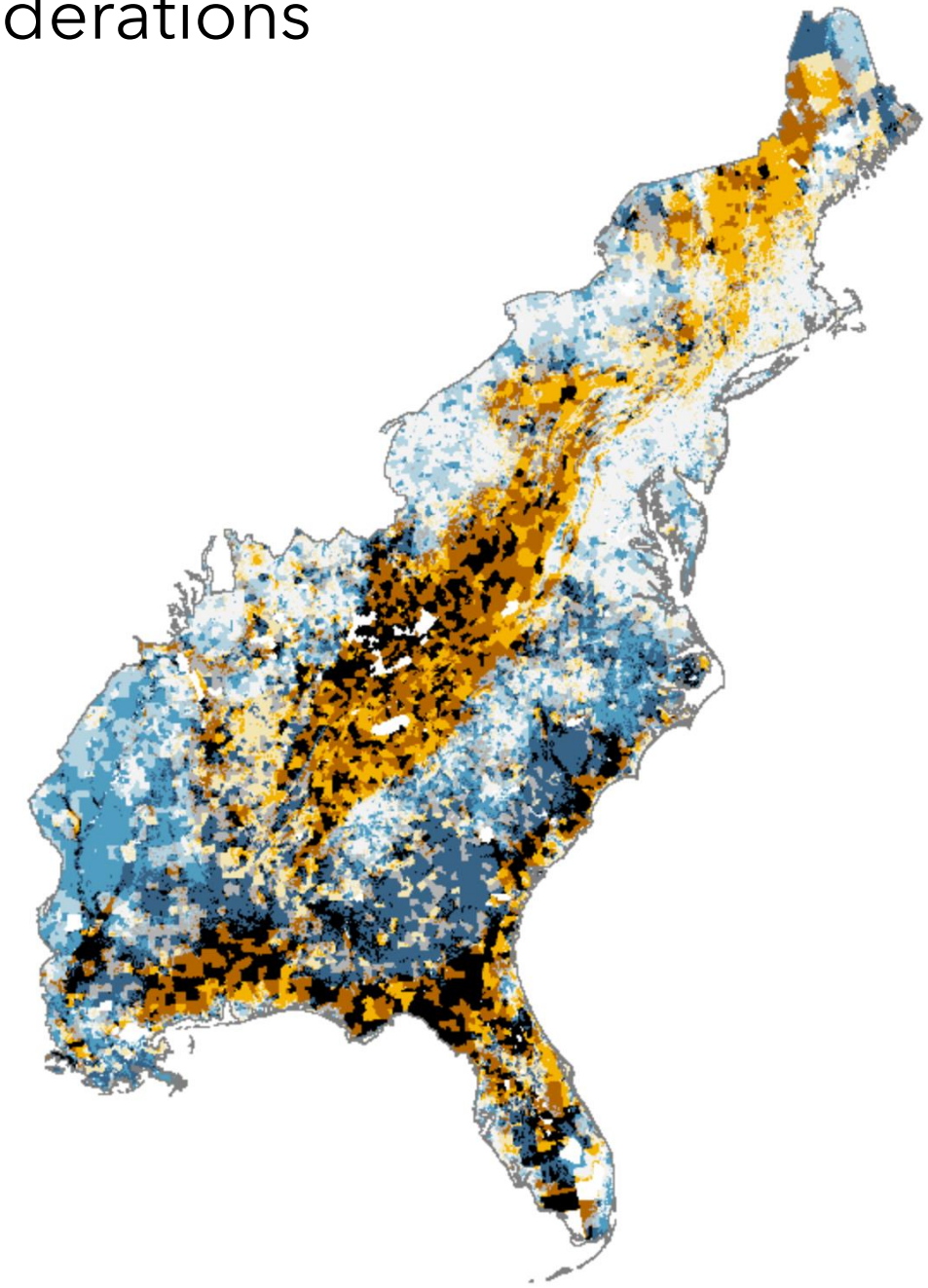


Combining ecological with social considerations









Thank you!

travis_belote@tws.org
peter_mckinley@tws.org