

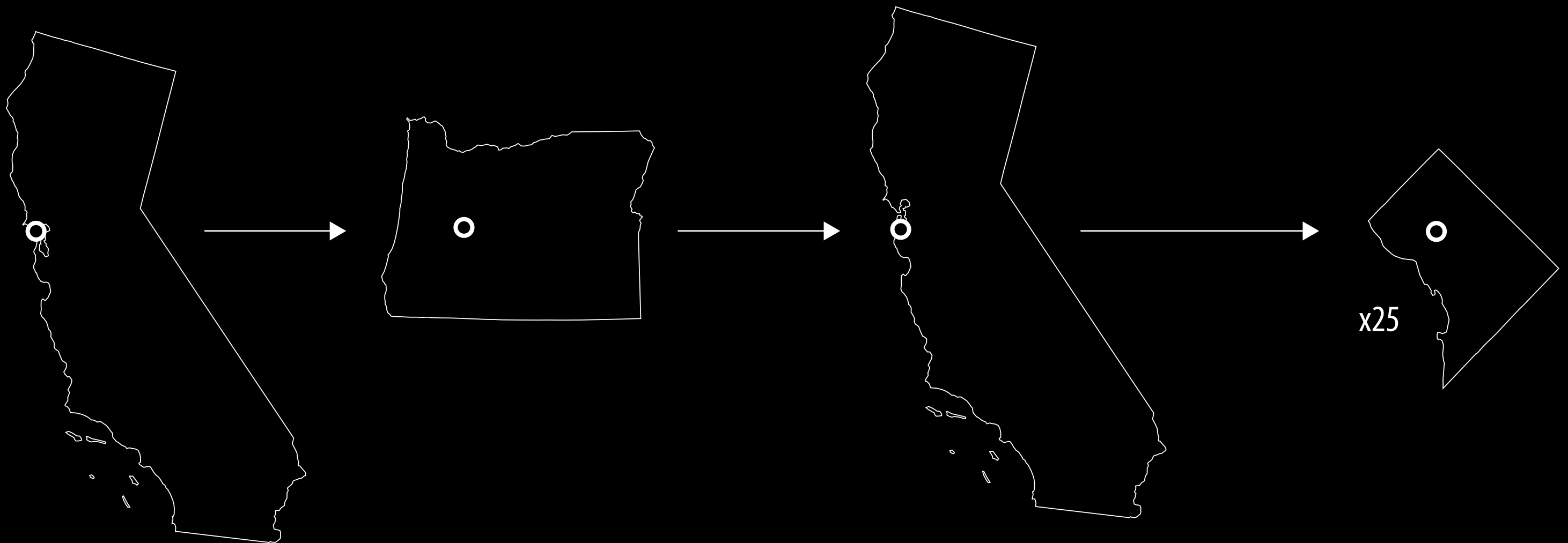
# Adapting Print Maps For Mobile Use

*A practical discussion by Riley D. Champine*



# ***A Bit About Me...***

# Where I'm from:



**San Rafael, CA**  
Childhood

**Eugene, OR**  
University of Oregon

**Sunnyvale, CA**  
Apple Maps

**Washington, DC**  
National Geographic

# What I do:

*Jr. Graphics Editor at National Geographic Magazine*

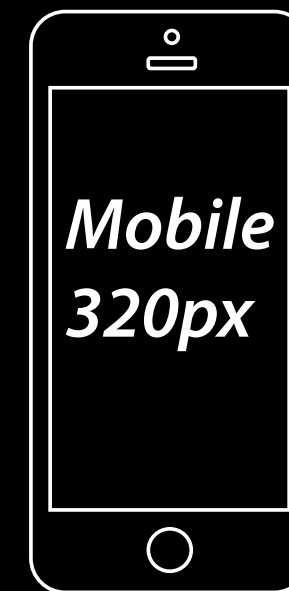
Assist Sr. Graphic Editors

Ensure print standards

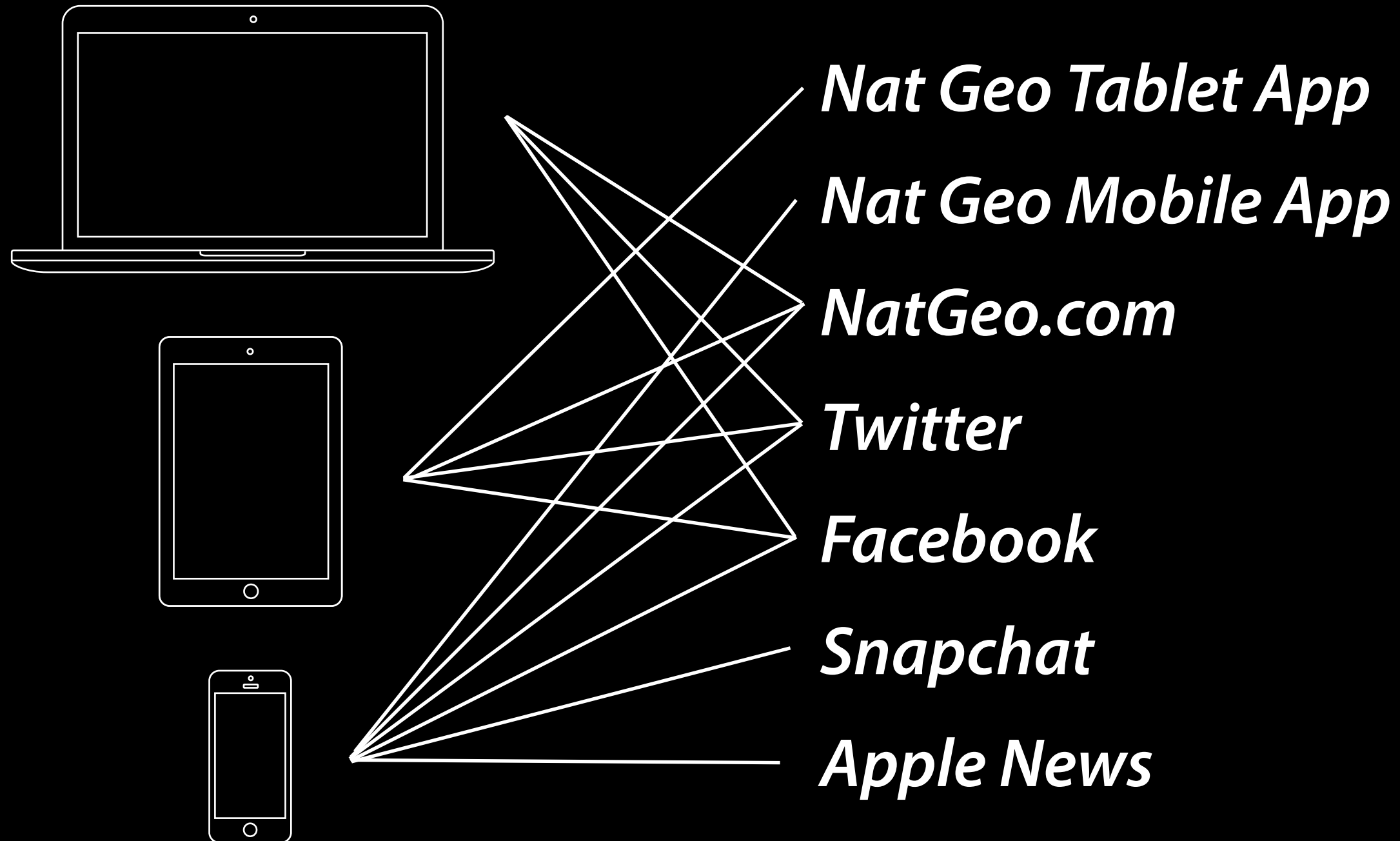
**Redesign print content for digital use**

# ***What's digital?***

# A deluge of devices:



# A plethora of platforms:

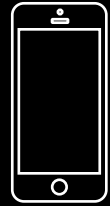


# The mobile reality:

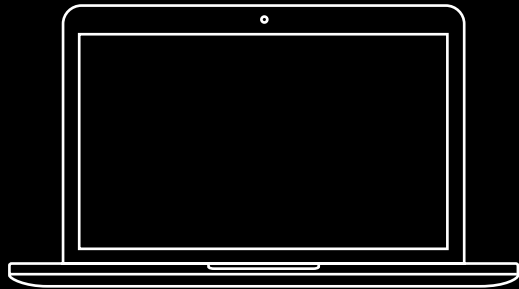
*A plurality of the online  
National Geographic audience  
views content on a mobile device.*



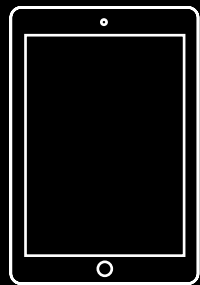
# Device usage:



48%



43%



9%

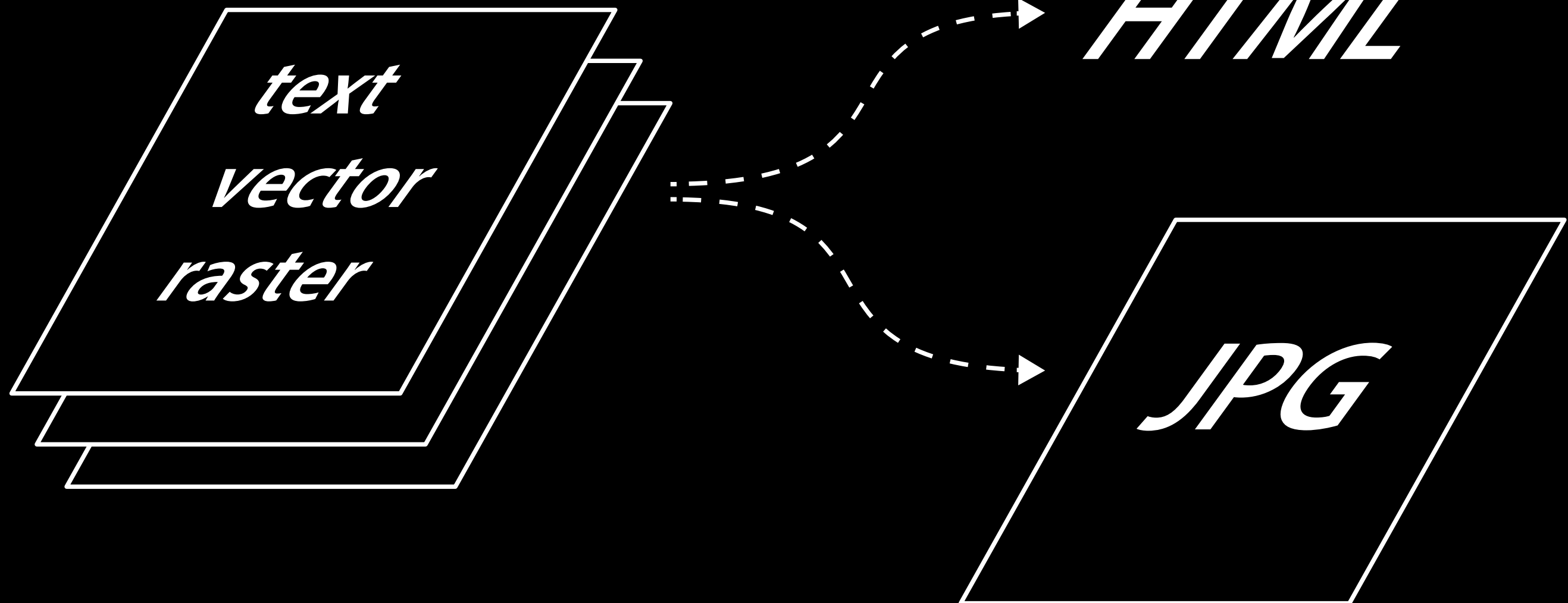
*Oct. 1, 2016 – Oct. 1, 2017  
Global views of magazine content  
on [nationalgeographic.com](http://nationalgeographic.com)*

# ***Briefly – Preparing Assets For Web Use***

# The AI2HTML script:

*Illustrator input:*

*Ready-for-web output:*



# AI2HTML benefits:

Responsive content

Search engine optimization

Lightweight assets

Pixel perfect type

# The human work:

*Redesign magazine content to fit three device sizes*

Desktop: *easy*

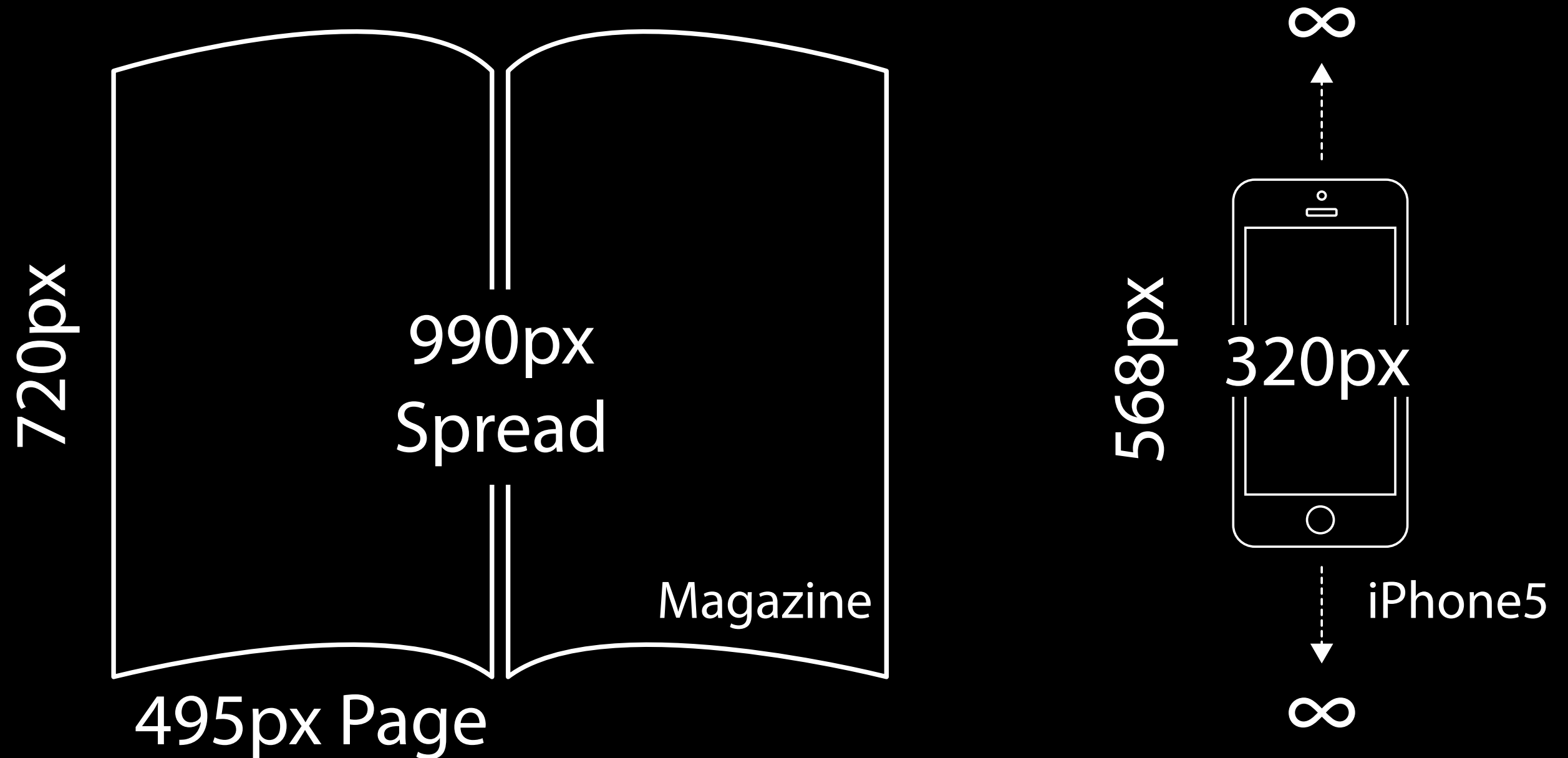
Tablet: *moderate*

**Mobile: *difficult***

# *Redesign Challenges*

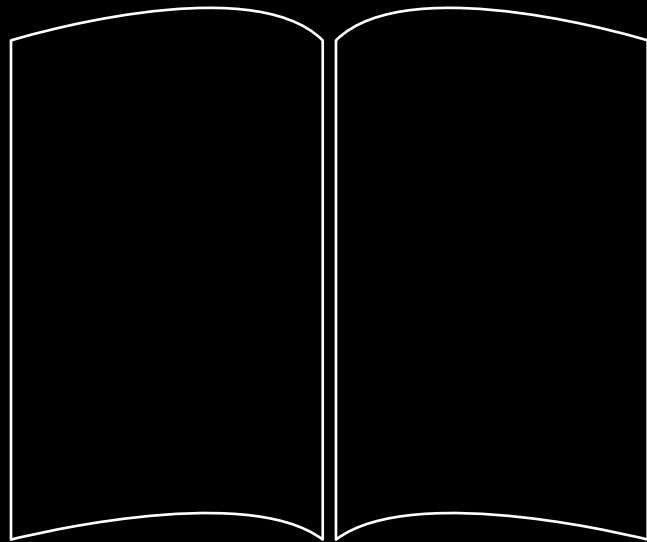
# Challenges:

## *Physical space*



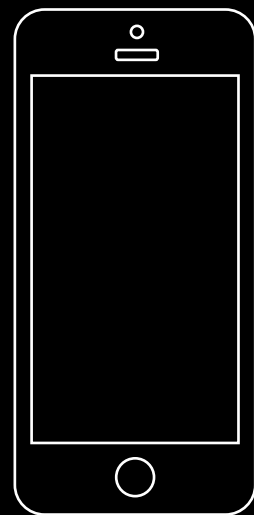
# Challenges:

## *Resolution*



300 dpi

6pt map label minimum



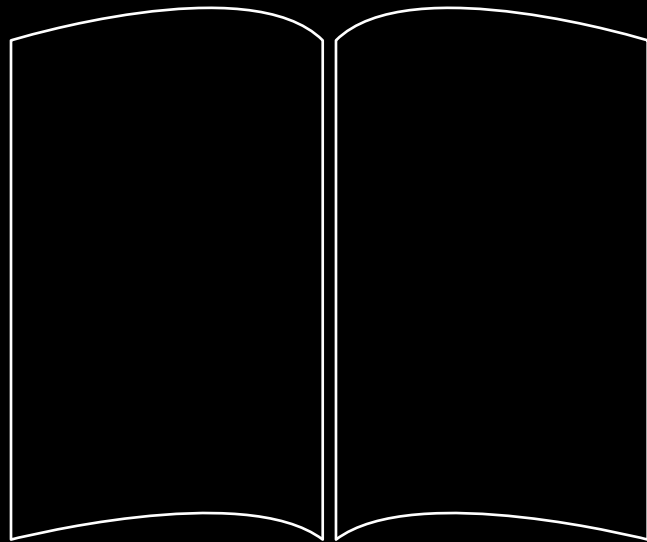
72 or 144 ppi (retina display)

13pt map label minimum

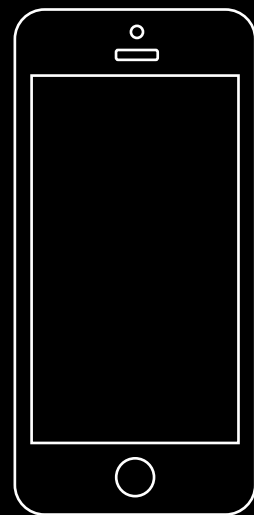


# Challenges:

## *Attention span of audience*



A collectable piece of art and journalism to keep and treasure



A randomly shared article worth a few moments distraction on the bus

# ***Mobile Strategies***

***Three examples and six lessons***

# ***“Artifact Melt”***

**Pages 140-141, April 2017  
by Matt W. Chwastyk**



# Heritage at Risk

The effects of global climate change threaten hundreds of sites that hold clues to Alaska's past. Permafrost once protected fragile artifacts from rot and mold, but warmer temperatures are now causing more and more of the icy ground to thaw in the southern part of the state. At the same time, seas are rising and winter storms are raging, putting sites all along the coast in danger.

## ROUGH WEATHER

Increasingly powerful storms are battering the Bering Sea. Because thawed land is soft and porous and much of the protective, land-anchored sea ice has melted away, a single violent event can erode the coast as far as 100 feet inland.

## LOCAL CONTROL

Native-owned corporations oversee the property and resources assigned to each group in a region or village.

- Alaska native land
- Calista Alaska native regional corporation
- Archaeological site

Land vulnerable to inundation by a 10-foot storm surge

## DOUBLE HAZARD

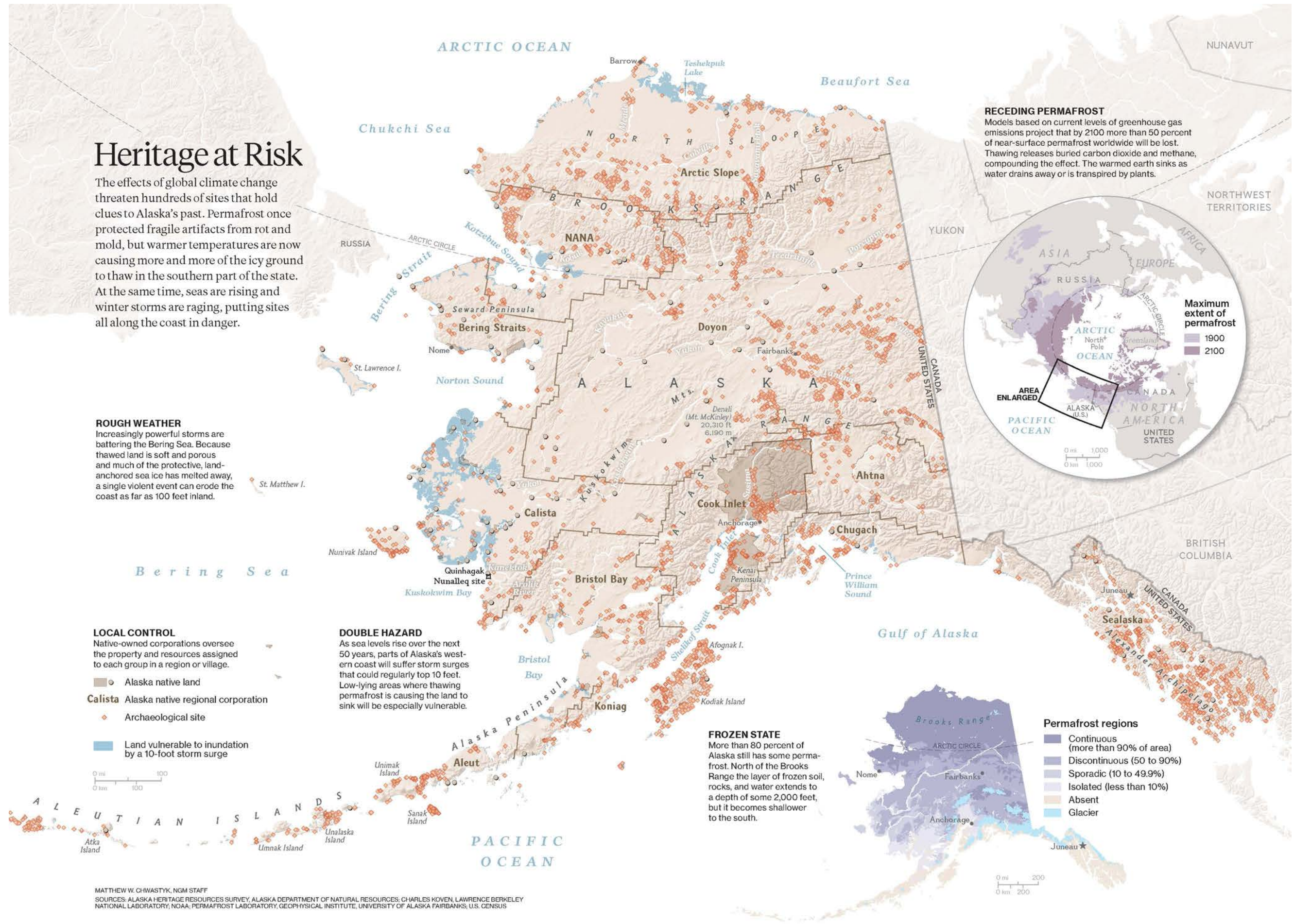
As sea levels rise over the next 50 years, parts of Alaska's western coast will suffer storm surges that could regularly top 10 feet. Low-lying areas where thawing permafrost is causing the land to sink will be especially vulnerable.

## FROZEN STATE

More than 80 percent of Alaska still has some permafrost. North of the Brooks Range the layer of frozen soil, rocks, and water extends to a depth of some 2,000 feet, but it becomes shallower to the south.

## RECEDING PERMAFROST

Models based on current levels of greenhouse gas emissions project that by 2100 more than 50 percent of near-surface permafrost worldwide will be lost. Thawing releases buried carbon dioxide and methane, compounding the effect. The warmed earth sinks as water drains away or is transpired by plants.





# Think outside the device

*Use code to push beyond size constraints*

JS plugin from GreenSock  
enables draggable content

```
<!-- START DRAGGABLE HTML -->
<div id="ngm-drag-wrap">
  <div id="ngm-drag-button">Drag&nbsp;to&nbsp;explore</div>
  <div id="ngm-drag">
    <!-- STUFF TO DRAG GOES HERE -->
    <!-- partial:ai2html-mainmap.html -->
    <!-- partial -->
    <!-- END DRAG -->
  </div>
</div>
<!-- END DRAGGABLE HTML -->
```

HTML

```
#ngm-drag-wrap {
  overflow-x: hidden;
  position: relative;
  #ngm-drag-button {
    pointer-events: none;
    position: absolute;
    top: 50%;
    left: 50%;
    transform: translate(-50%, -50%);
    z-index: 1111;
    text-transform: uppercase;
    padding: 10px 15px 10px 15px;
    font-family: "HCo Verlag", CenturyGothic;
    font-size: 14px;
    font-weight: bold;
    letter-spacing: 0.15em;
    background: rgba(250, 250, 250, .8);
    box-shadow: 0 0 5px rgba(0, 0, 0, .5);
    text-align: center;
    transition: opacity .5s;
    width: 250px;
    img {
      display: inline-block;
      width: 35px;
      margin: 0 10px 0 0
    }
    &.ngm-hidden {
      opacity: 0
    }
  }
}
```

CSS

# Embrace the scroll

*How can elements be organized into a vertical narrative?*



# Heritage at Risk

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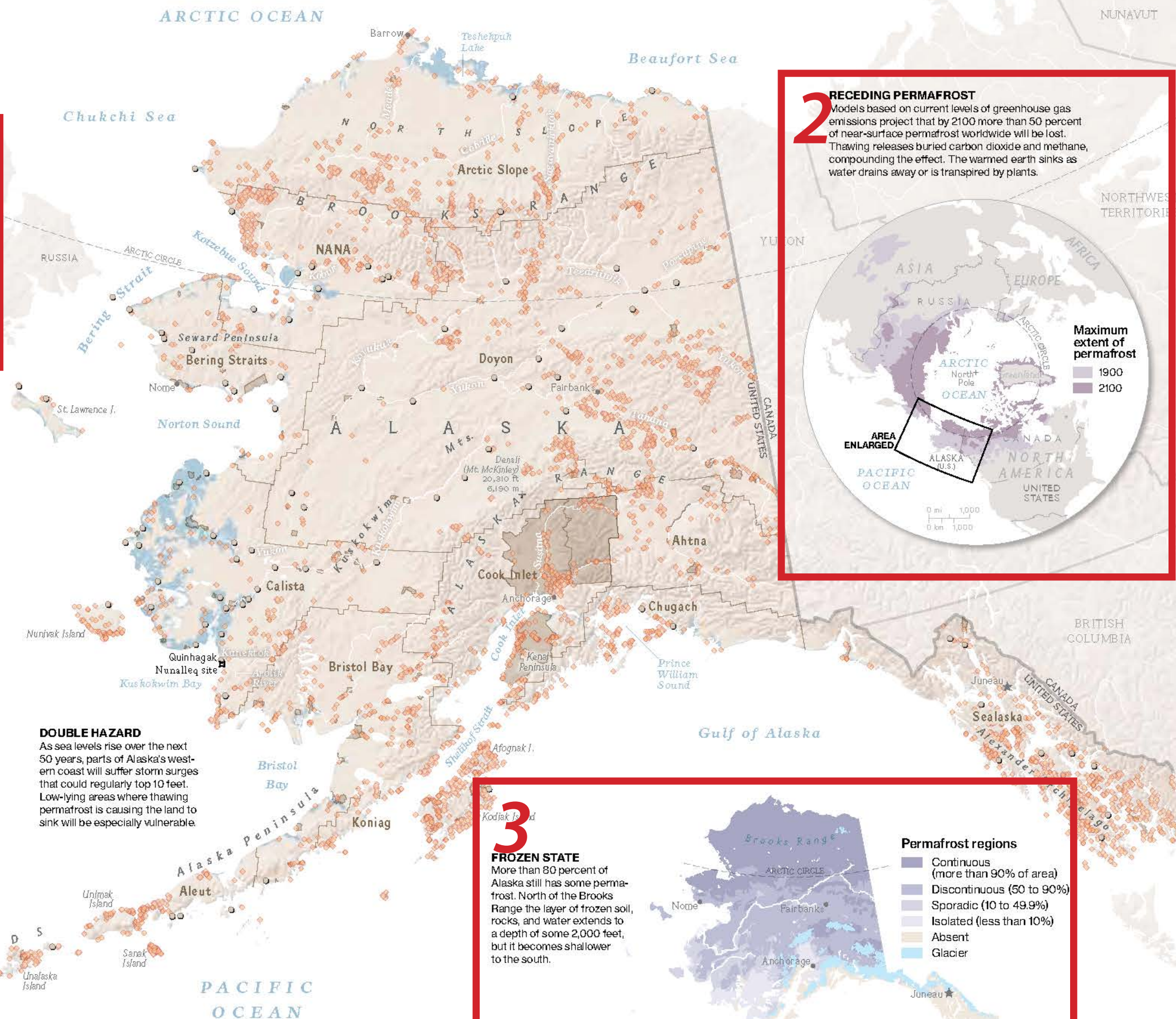
- Alaska native land
- Alaska native regional corporation
- Archaeological site

- Land vulnerable to inundation by a 10-foot storm surge

0 mi 100  
0 km 100

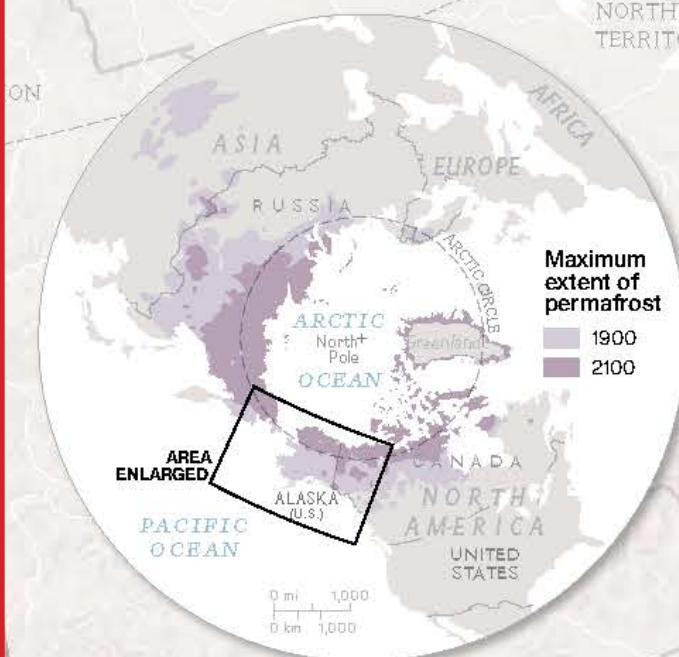
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## Permafrost regions

- Continuous (more than 90% of area)
- Discontinuous (50 to 90%)
- Sporadic (10 to 49.9%)
- Isolated (less than 10%)
- Absent
- Glacier

0 mi 200  
0 km 200

MATTHEW W. CHWASTYK, NGM STAFF

SOURCES: ALASKA HERITAGE RESOURCES SURVEY, ALASKA DEPARTMENT OF NATURAL RESOURCES; CHARLES KOVEN, LAWRENCE BERKELEY NATIONAL LABORATORY; NOAA; PERMAFROST LABORATORY, GEOPHYSICAL INSTITUTE, UNIVERSITY OF ALASKA FAIRBANKS; U.S. CENSUS



# ***“Scottish Moors”***

**Page 95, May 2017  
by Lauren James**



Scotland has lost more than 25 percent of its heathland since World War II—but whether that loss is cause for concern depends on your point of view.

to make ownership of such estates more costly and difficult—a plan shaped in part by long-held tensions over class and debates about the future of the moors, Scotland’s signature landscape.

For Macpherson-Fletcher, it was time to ring down the curtain.

In preparation for the new owners, the house had been stripped down to its hardwood floors and wainscoted walls. Down came ancestral portraits; closets were emptied of coats, breeks, caps, and waistcoats in the blue, tan, and brown estate tweed. Into storage went the glass-eyed trophy heads that hung on walls (stags, gazelles, two Cape buffalo, game birds), the mahogany dining table, silver meat domes and branched candelabras, Oriental carpets, the sterling service for 30 engraved with the Macpherson crest and motto, “Touch not the cat bot a glove” (translation: Don’t mess with me).

Instead of a sporting estate—a quintessentially British institution where clients pay dearly to roam the moors to stalk red deer, shoot grouse, and fish for salmon—Balavil would become a family residence. The manor, said the buyer’s wife, Hannah Heerema, would be a place “for the children to spend time.” (Last May the owners filed an application, pending as of this writing, to turn the farm buildings into a visitors center with a café, events facilities, and a parking lot with about 140 spaces for cars and buses.

Communities nearby, unpleasantly surprised about the turn toward the commercial and concerned about the detrimental impact on their villages, objected.)

After the closing, as if to underscore the end of a chapter, agent Pirie, who had been doggedly trailing Macpherson-Fletcher to ensure the deadline was met, drilled the garage door shut to secure the premises. What a shame that there were swallows nesting inside the garage, trapped as an unintended consequence of the sale.

“Poor birds,” thought Allan Macpherson-Fletcher, the former Laird of Balavil.

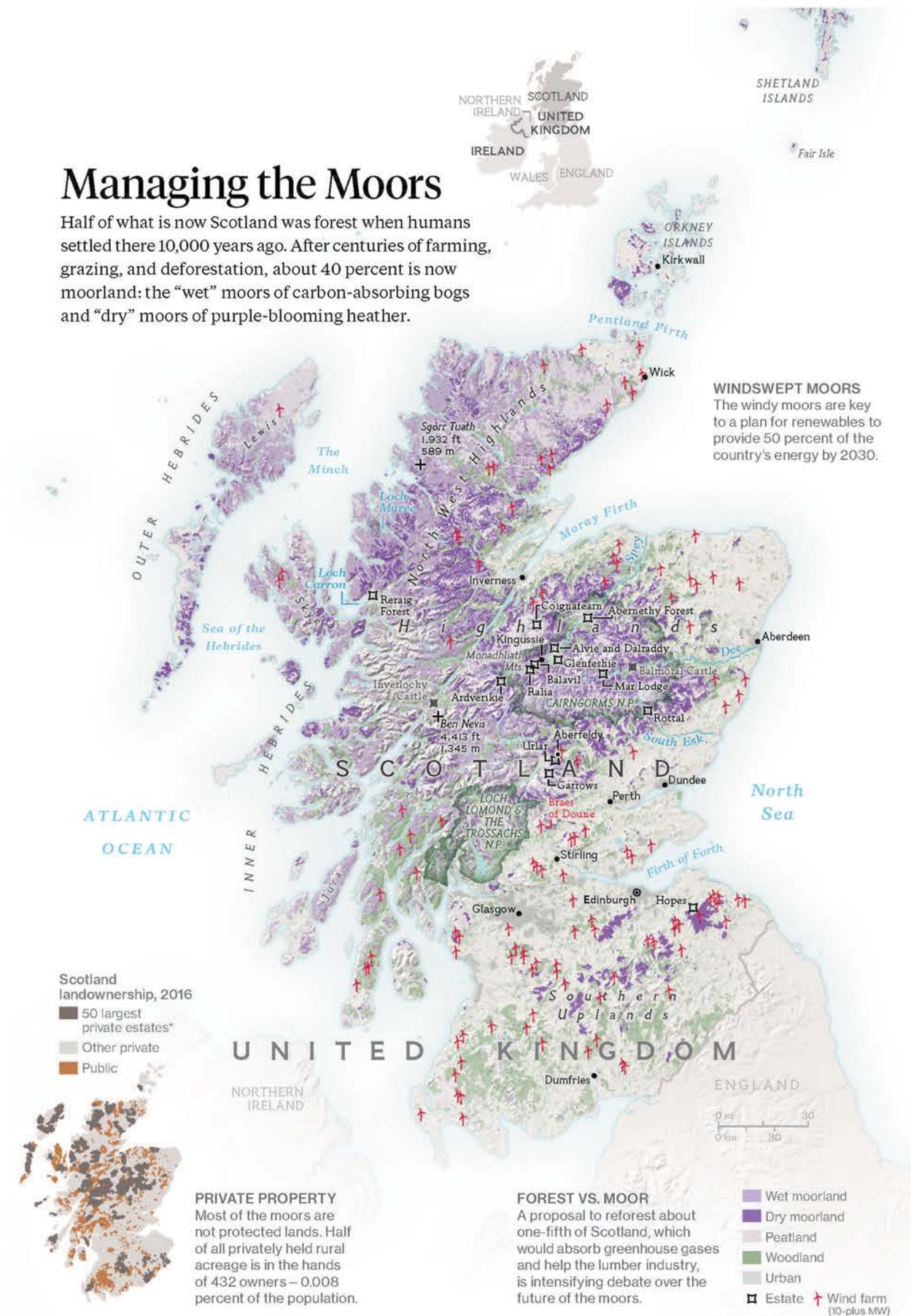
BALAVIL SITS in the Scottish Highlands, bracketed between the Spey and the Monadhliath Mountains. Six thousand of the estate’s 7,000 acres are moorland—a unique landscape whipped by the same gale-force gusts of economic, social, and political change that helped sweep the estate into the arms of a foreign buyer. (With the drop in the value of the pound after the United Kingdom’s vote to leave the European Union, acquisition of Scottish estates by foreign money is likely to accelerate. International buyers snapped up half of the 16 estates sold in 2015 and 2016.)

A moor is a close-shaven landscape of shrubs and grasses clawed at by wind, minimalist in feel. Think abstract art: blocklike swaths of color in a muted palette of ocher, sienna, and charcoal, with accents—depending on season and terrain—of sulfuric yellow (bog asphodel), maroon (lichen), and in late summer, a royal cloak of purple heather. The term incorporates the drier heath of the Highlands, as well as the wetter landscapes of blanket bogs in the more poorly drained regions of the country. Seventy-five percent of the world’s heather moorland is in the United Kingdom, most of it in Scotland.

A moor is also the bleak backdrop of gothic literature and Hollywood epics: Emily Brontë’s *Wuthering Heights*, Arthur Conan Doyle’s *Hound of the Baskervilles*, Mel Gibson’s *Braveheart*. Above all, it is the iconic headliner of Visit Scotland tourist brochures. In a government survey, respondents identified a heather-carpeted moor, a loch, and an artfully placed red deer

## Managing the Moors

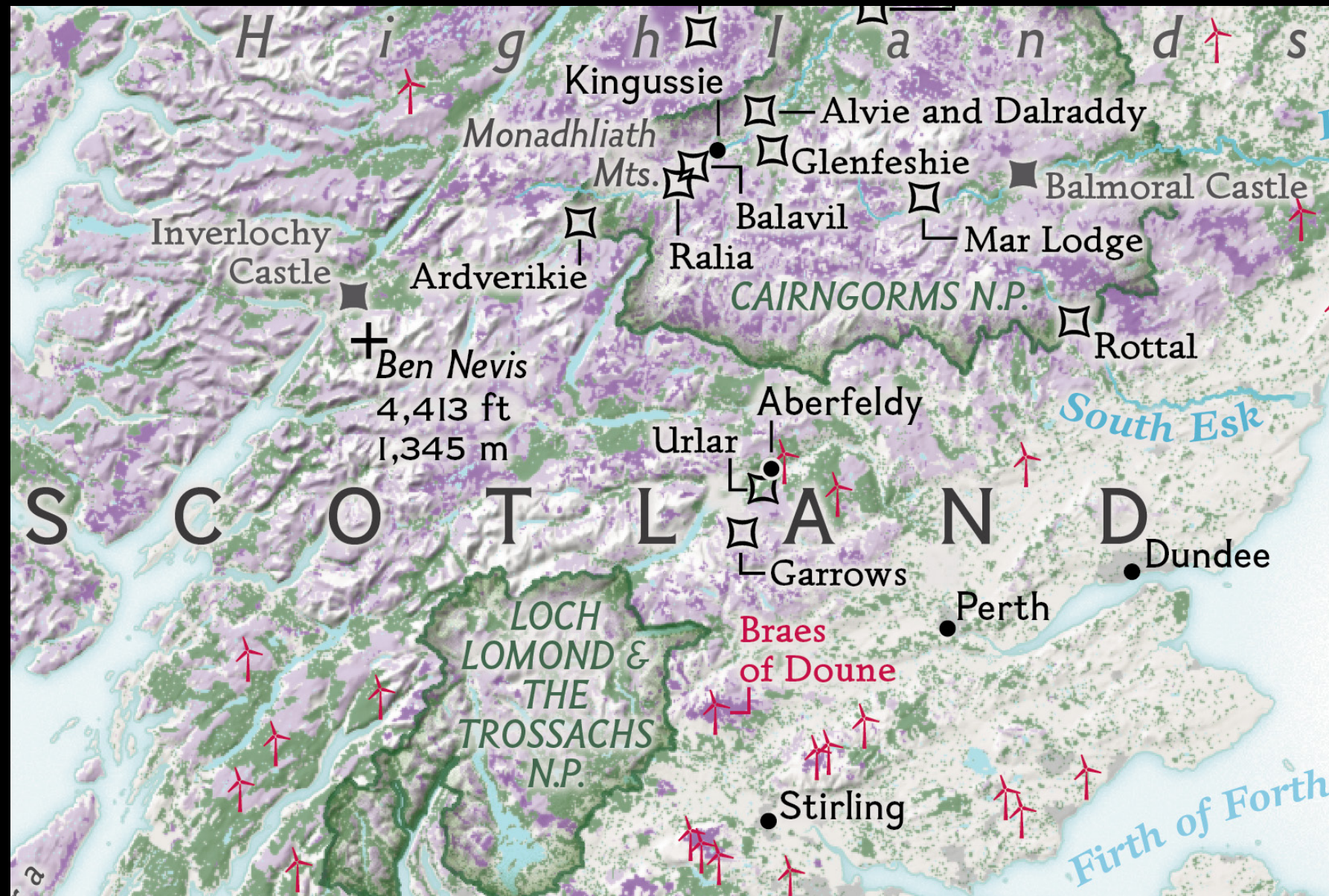
Half of what is now Scotland was forest when humans settled there 10,000 years ago. After centuries of farming, grazing, and deforestation, about 40 percent is now moorland: the “wet” moors of carbon-absorbing bogs and “dry” moors of purple-blooming heather.



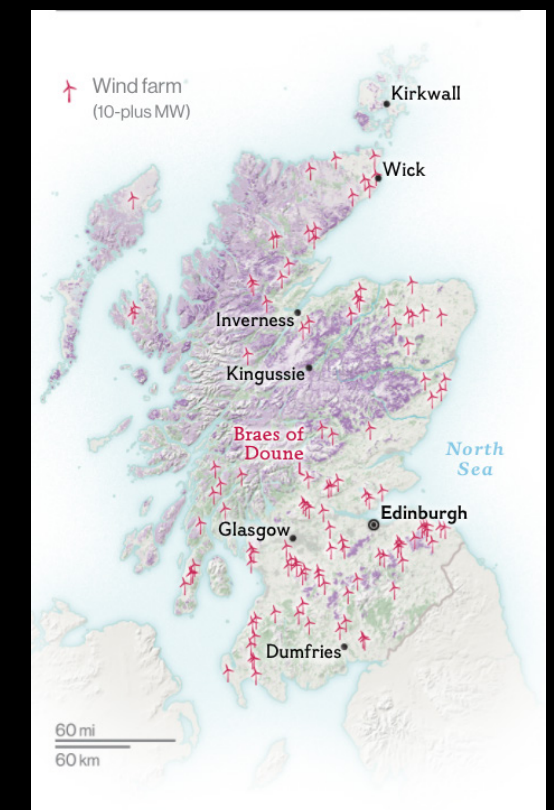


# Reorganize layered content

## *How can dense elements be split into multiple pieces?*



*becomes*





# Reevaluate label hierarchy

*What labels can be sacrificed for legibility?*

<i>Example Hierarchy</i>	Thematic labels	
	Countries	<i>must keep</i>
	Cities	<i>keep if possible</i>
	Points of interest	
	Rivers/Lakes	<i>remove</i>
	Physical features	

# ***“Nenets”***

**Page 118-119, October 2017  
by Lauren C. Tierney**



the Nenets enjoy one of the few perks of having a mega-development in their backyard: We're now within range of Bovanenkovo's cell phone tower.

I step away from the sleighs to stretch my legs. The midnight sun fills the lakes and waterways ahead of us with an amber glow. A distant hum, like that of a jet before takeoff, draws my attention; it's coming from the gas field, still many miles away.

Yamal's natural gas is the cornerstone of Russia's energy strategy—the new source that will replace declining fields to the south and east of here—and Bovanenkovo is the cornerstone of Yamal. It's operated by Gazprom, the state-owned company that produces most of Russia's natural gas and supplies more than a third of the European Union's imports. According to Alexey Miller, Gazprom's CEO, Yamal could produce as much as 13 trillion cubic feet of gas a year by 2030—more than a third of Russia's projected total. Bovanenkovo alone has confirmed reserves of nearly 173 trillion cubic feet. Linked to the mainland by its own airport and a 350-mile railroad, and to Russia's gas grid by two 750-mile pipelines, Bovanenkovo is also a launchpad for Gazprom's further expansion into the Russian Arctic.

Global warming is the greatest obstacle to that ambitious agenda. Alexey Osokin is deputy director of Gazprom's engineering center, which has collected and analyzed 25 years of weather and permafrost data from meteorological stations and gas wells around the Yamal Peninsula. "One cannot argue with the data," he says. "There is no doubt that the climate is warming." In summer, thawing permafrost undermines the stability of Gazprom structures. The company has had to install refrigeration units to keep the ground frozen around wellheads and pipelines.

Some effects of thawing permafrost are hard to prepare for, Osokin says. In the summer of 2014 a gaping crater, 130 feet wide by 115 feet deep, suddenly formed in the tundra 19 miles southeast of Bovanenkovo. Experts blame an eruption of methane gas that had been trapped under frozen ground. They worry that if a similar eruption were to occur under the gas field itself, it could cause considerable damage. In the summer of 2017 two

## The Paths of Resilience

For centuries Nenets reindeer herders have migrated to summer pastures on the Yamal Peninsula, returning south in winter. Climate change, with its summer droughts and winter rains, challenges that way of life—as does Russia's development of Yamal's natural gas.

### LUCRATIVE LANDS

The sparsely populated Yamal Peninsula holds more than a fifth of Russia's natural gas reserves and about as much as the entire United States.

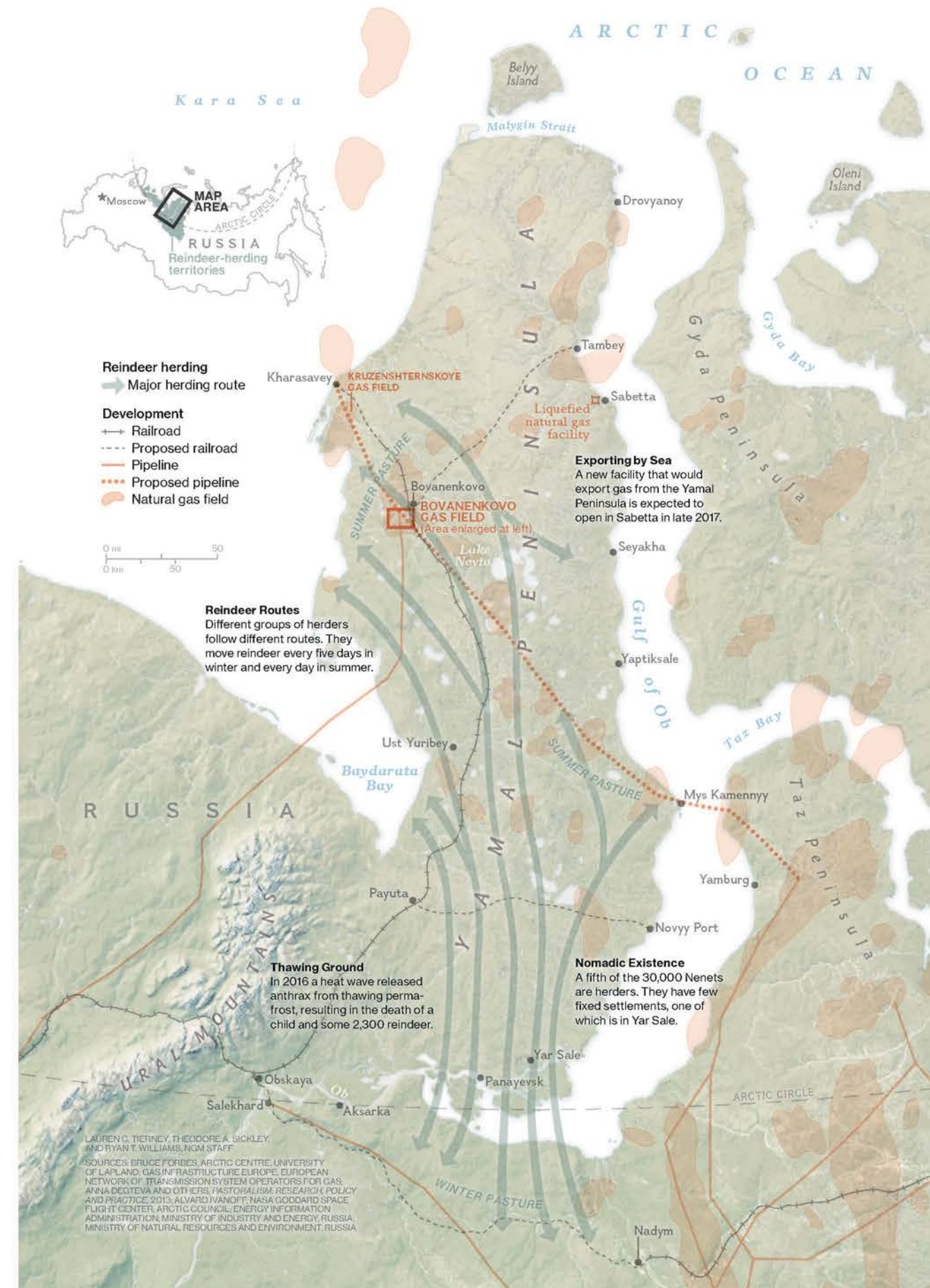
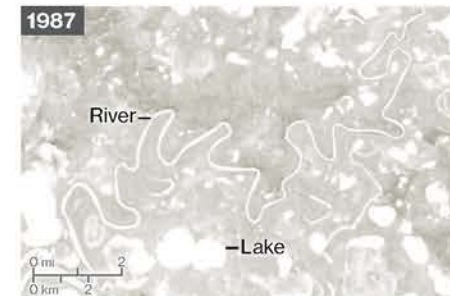
### Proven reserves of natural gas, 2017

Trillion cubic feet



### THE BOOM AT BOVANENKOVO

To get at 173 trillion cubic feet of gas at this field, the Russian company Gazprom has built roads, well pads, and pipelines that interfere with a reindeer migration corridor.





# Cater to the device

*How can print assets be tweaked for relevance?*



Print

*Supporting reference*

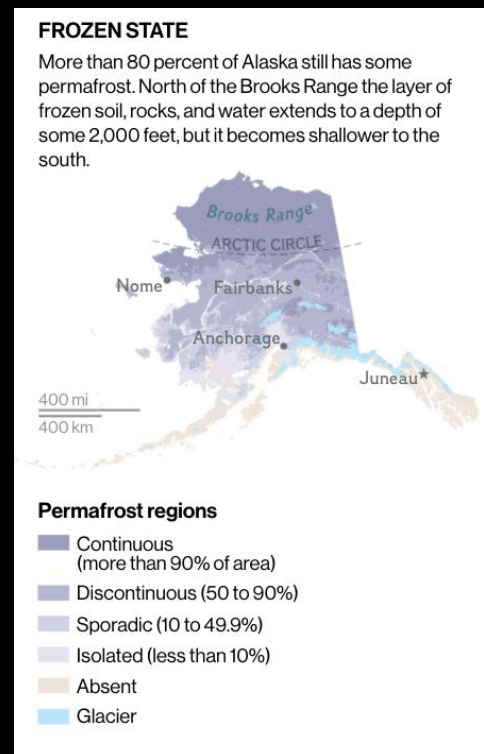
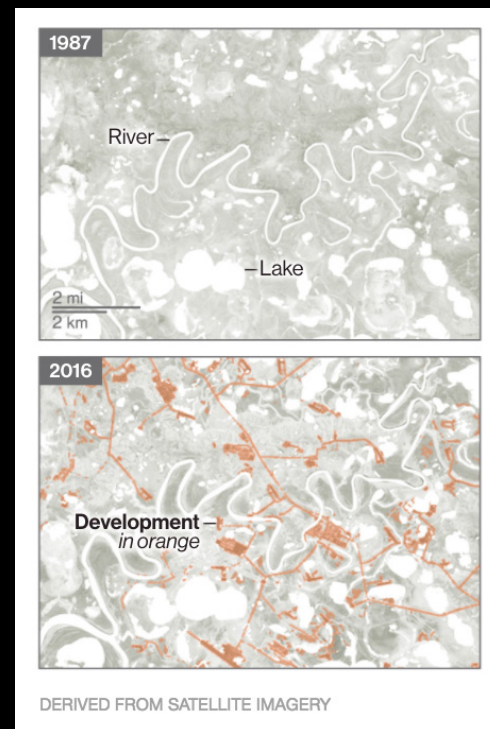


Digital

*Contextual introduction*

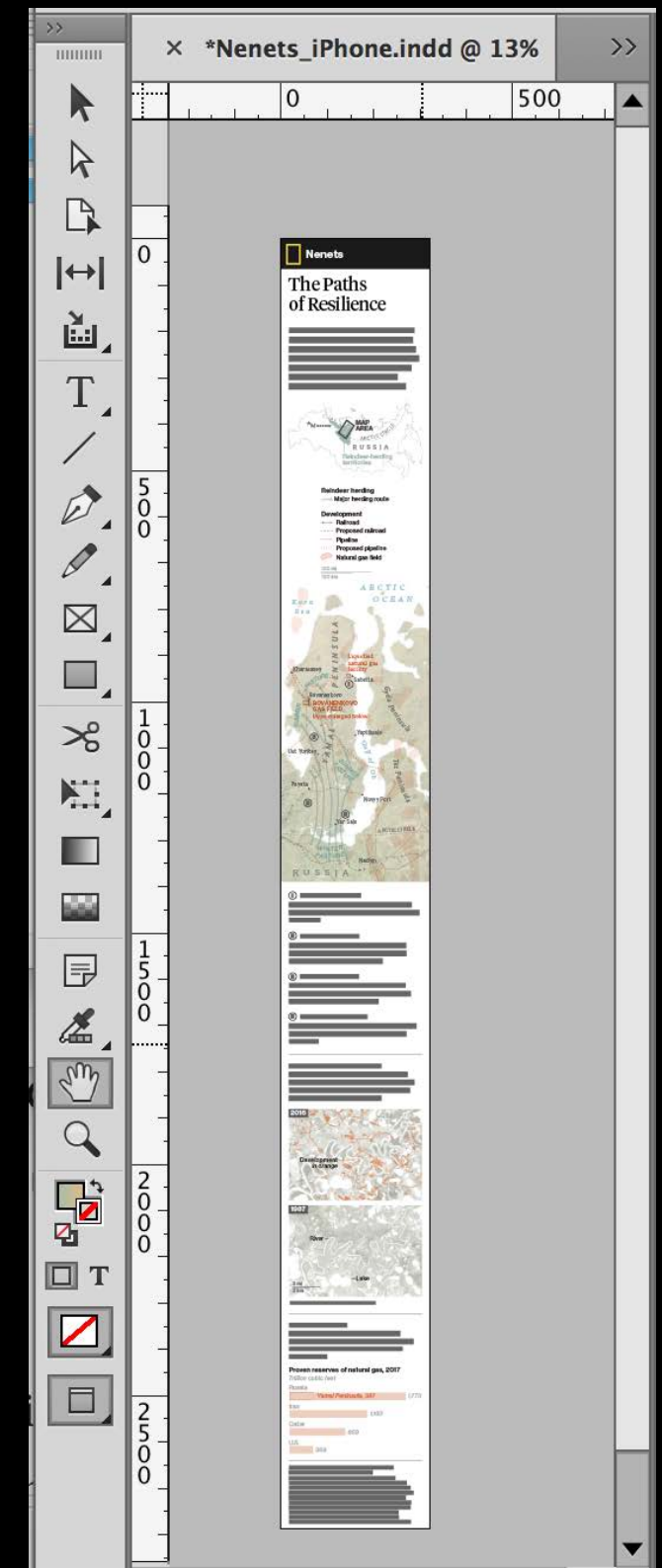
# Avoid “column vision”

## *Treat maps like slides in a deck*



*like  
this*

*not  
this*



***Thank you!***



*Follow me*  
***@rileydchampine***

*Presentation materials available at*  
***[rileydchampine.com/nacis2017](http://rileydchampine.com/nacis2017)***