

BirdCast

Weather surveillance radar perspectives on bird migration in the United States

Andrew Farnsworth, Senior Research Associate
29 September 2022

The **Cornell** Lab  of Ornithology

Showcasing the spectacle of bird migration

When, where, and how far will birds migrate? How many birds passed last night? Our tools help you explore the answers to these and many other questions about bird migration.

[Learn how](#)



MYSTERY OF THE MISSING MIGRANTS | © Charley Harper Art Studio | Used with Permission

POWERED BY

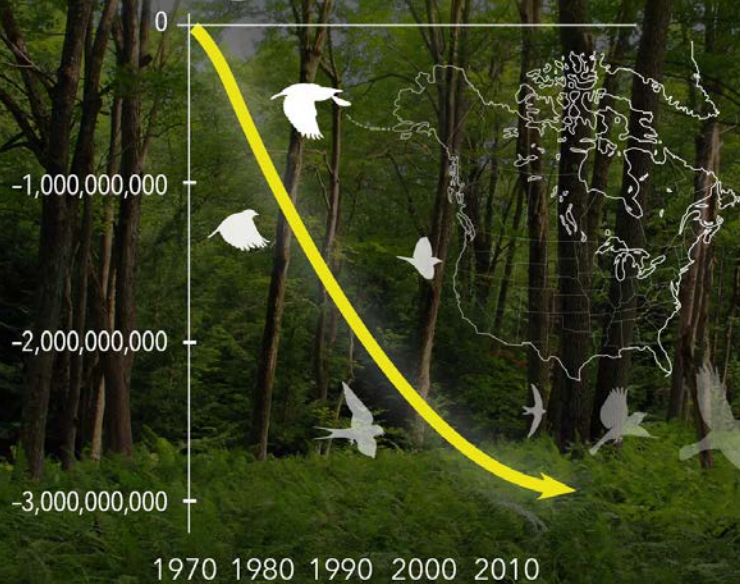
The **Cornell**Lab 

 Colorado State University

UMassAmherst

2.9 billion

birds gone since 1970



Forest by Nicholas Forelli/Creative Commons, Map from Birds of North America birdsna.org

Courtesy of the Cornell Lab of Ornithology. Source: Science, 2019

Migratory Birds

2.5

BILLION

MIGRATORY BIRDS
LOST SINCE 1970

2 IN 5

BALTIMORE ORIOLES
LOST SINCE 1970



-28%

POPULATION LOSS
IN MIGRATORY
BIRD SPECIES
SINCE 1970



Baltimore Oriole by Gary Mueller/Mesa Arts Library, Forest by Nicholas Forelli/Creative Commons

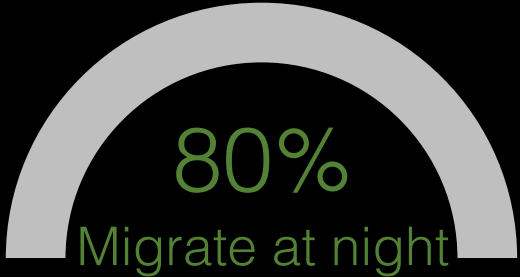
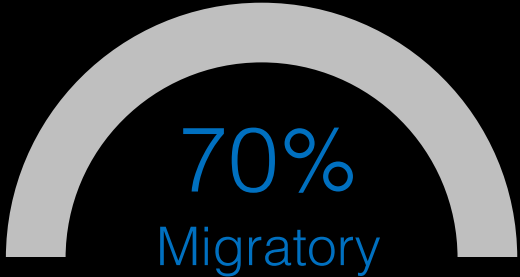
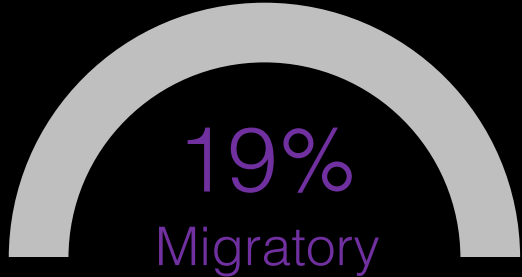
Courtesy of the Cornell Lab of Ornithology. Source: Science, 2019

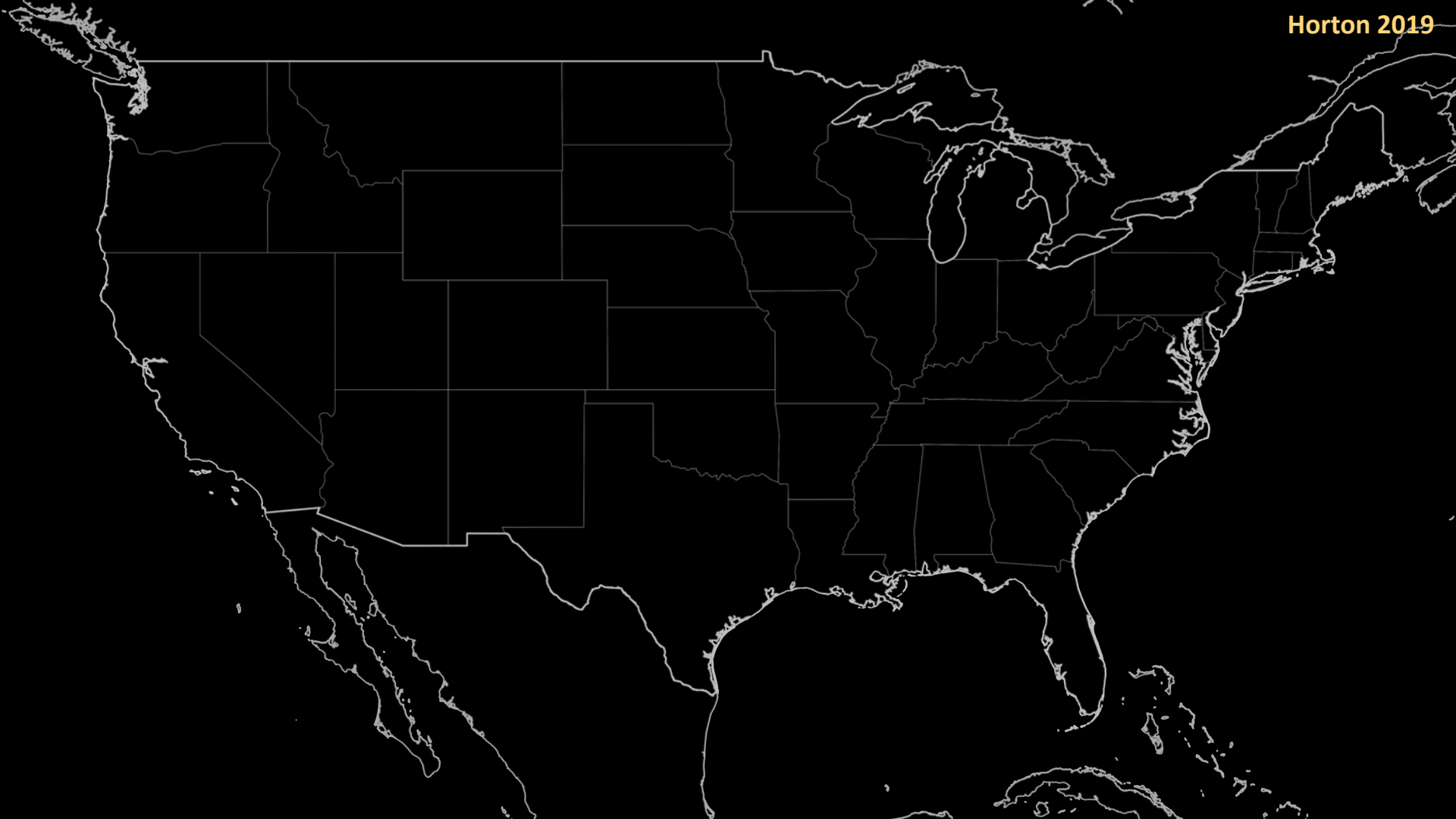


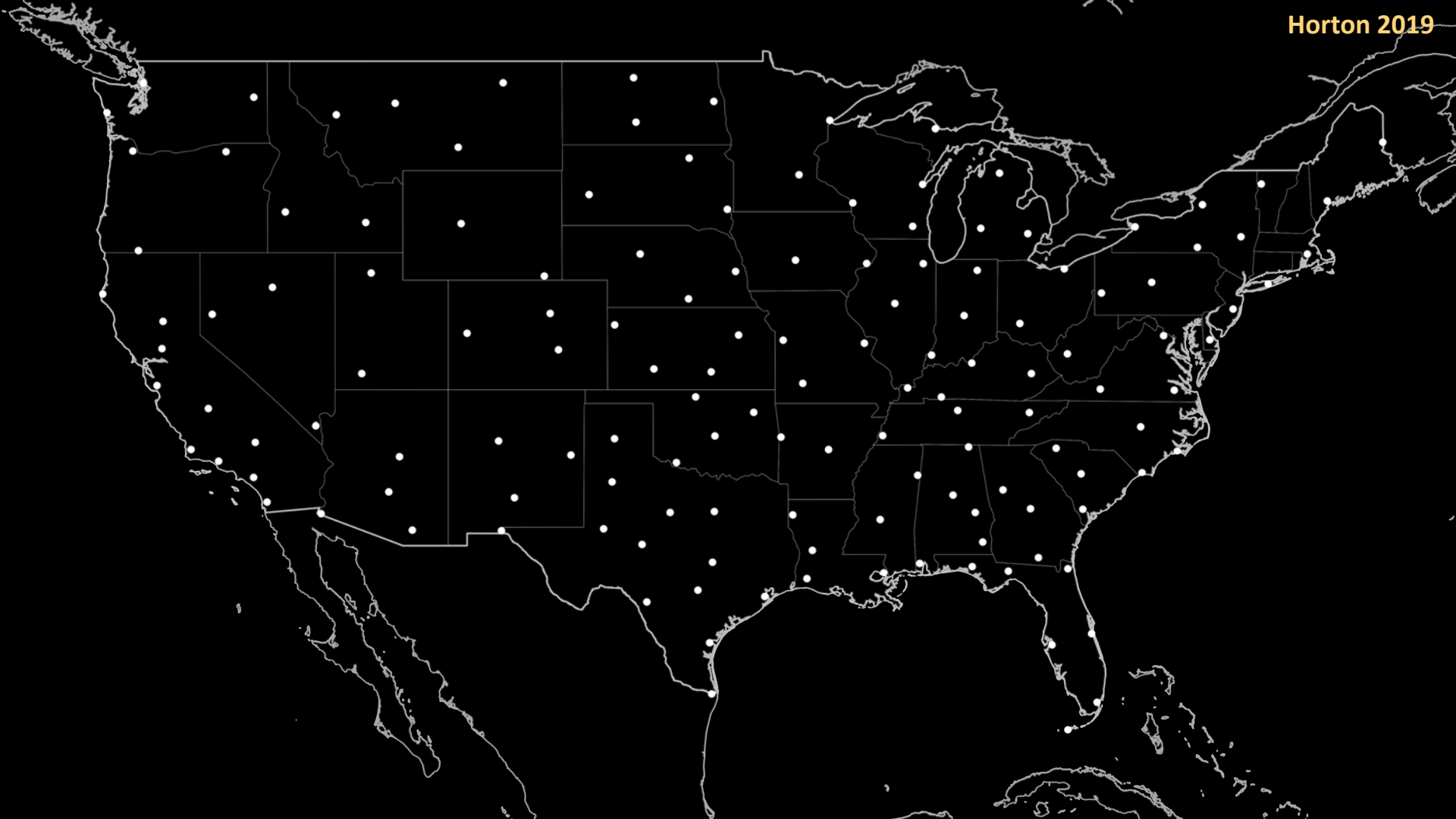
All bird species

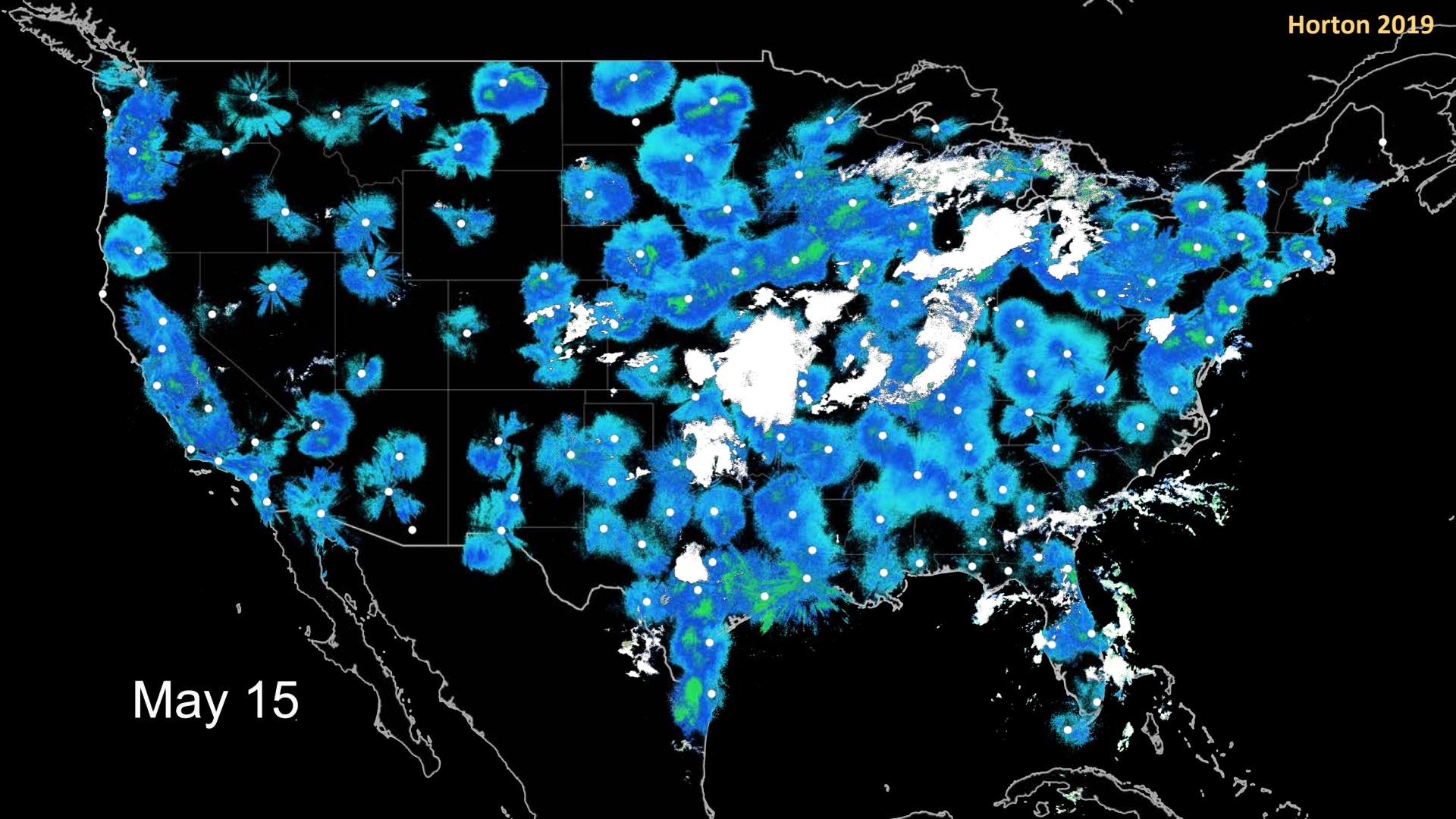
North American
bird species

North American
migratory birds



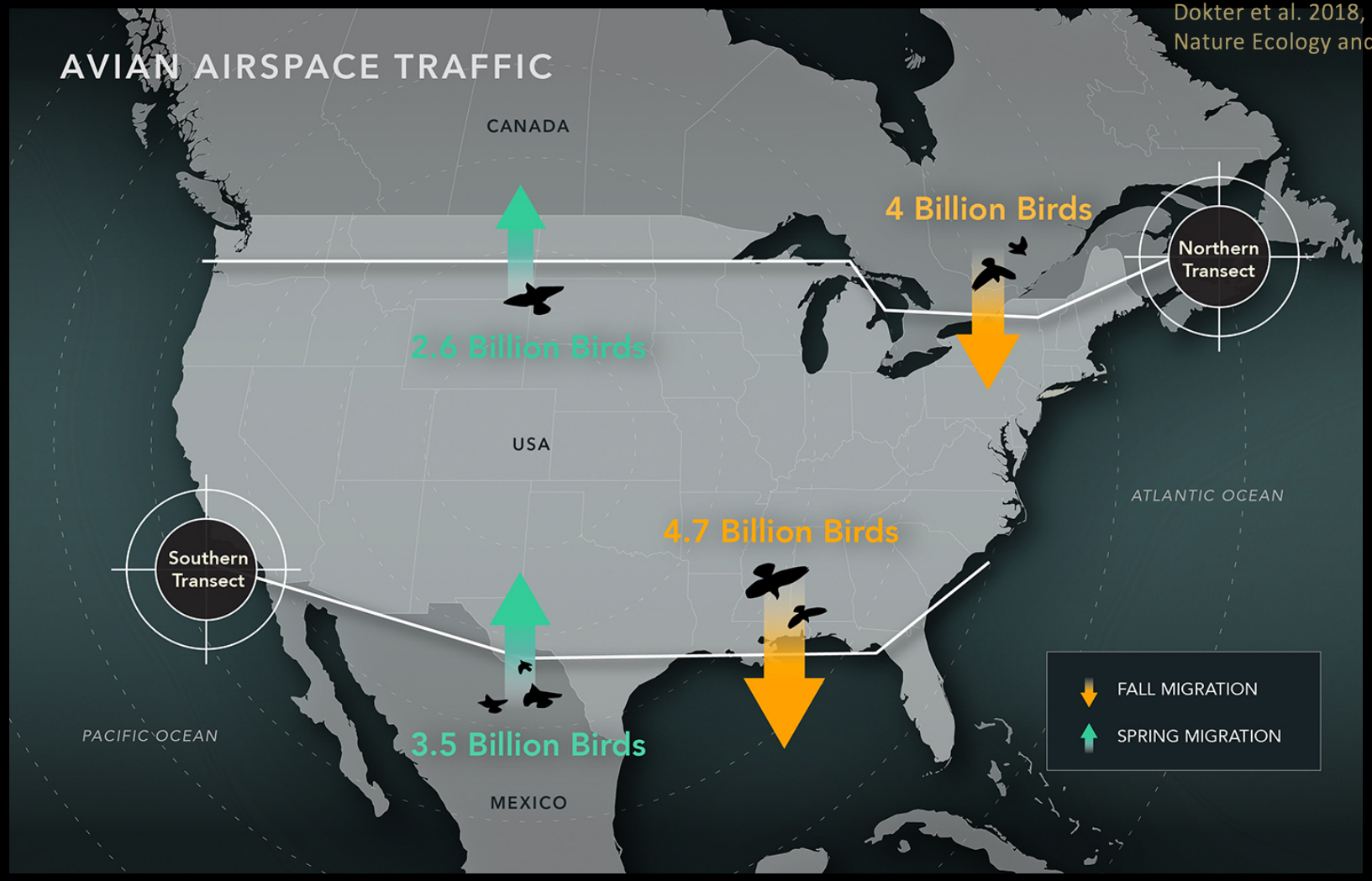






May 15

AVIAN AIRSPACE TRAFFIC



CANADA

4 Billion Birds



2.6 Billion Birds

USA

4.7 Billion Birds

ATLANTIC OCEAN



Southern
Transect

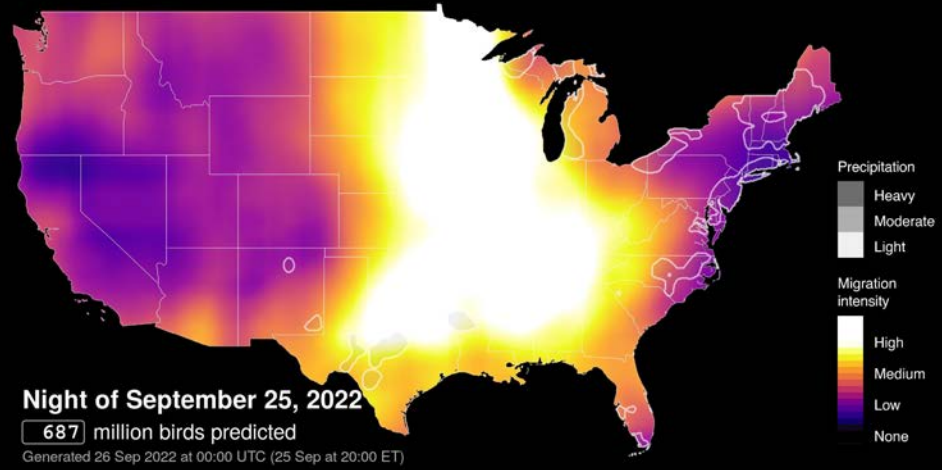
PACIFIC OCEAN

3.5 Billion Birds

MEXICO

↓ FALL MIGRATION
↑ SPRING MIGRATION

Forecast Migration Maps

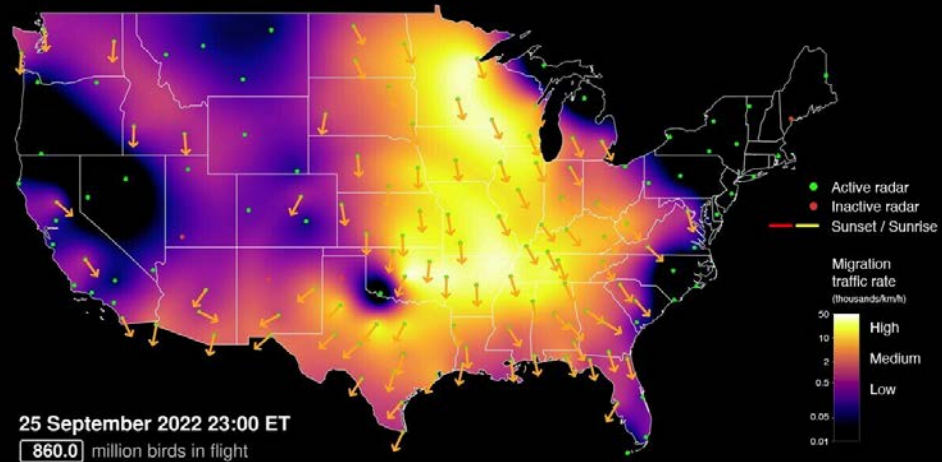


Bird migration forecast

Van Doren and Horton 2022

BirdCast

Live/Observed Migration Maps



Live bird migration maps

Dokter 2022

BirdCast

Migration Dashboard

Live data feed begins each night after sunset.

58,812,100

Birds crossed Arkansas this night (est.) High

Starting: Sun, Sep 25, 2022, 7:00 PM CDT
Ending: Mon, Sep 26, 2022, 7:00 AM CDT

[Learn more](#)

PEAK MIGRATION TRAFFIC

78,943,600

 Birds in flight (est.) High

Direction: S Speed: 29 mph Altitude: 2,100 ft

Recorded: Sun, Sep 25, 2022, 10:00 PM CDT

Not all birds may fully cross a region in one night, resulting in a greater number of birds in flight than total birds crossed.



Here's what happened across this night...

Birds in flight



Birds usually begin to migrate 30 to 45 minutes after sunset, with the greatest number in flight two to three hours later.

Flight direction and speed



Birds tend to migrate southward in autumn, but seasonal timing, weather, and geography alter their flight directions and speeds.

Altitude

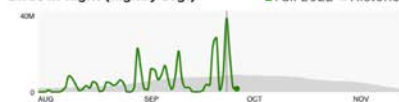


Migrating birds regularly fly up to 10,000 feet above ground, although seasonal timing and weather conditions dramatically impact their distributions.

Note: Direction, speed, and altitude may be unreliable when the number of birds in flight is low. In such cases, chart data may include gaps.

And so far this season...

Birds in flight (nightly avg.)



During fall migration, most birds pass through the contiguous U.S. from early September through October.

Total birds crossed



This is the estimated total number of birds that have fully crossed this region. The curve rises quickly during peak migration and levels off at the end of the season.

Expected nocturnal migrants

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Nocturnally migrating species most likely to arrive or depart this region at this time of year, based on frequency of observations



Yellow-throated Vireo



Eastern Kingbird



Nashville Warbler



Black-throated Green Warbler



Yellow-billed Cuckoo



Great Crested Flycatcher



Philadelphia Vireo



Hooded Warbler



American Redstart



Yellow-rumped Warbler



Lights Out Alerts: alert.birdcast.info/lightsout

Lights Out Alerts BirdCast

Portland, OR, USA Change location

Tonight's migration forecast ⓘ
Night of Thursday, September 29

High >10,000 birds/km/night

Lights Out Alert
Turn off your lights tonight to save migrating birds.

A Lights Out Alert has been issued for this region. Large numbers of birds are forecast to migrate over this area overnight. Bright lights attract and disorient nocturnally migrating birds, potentially causing fatal collisions with buildings or exposure to additional day time hazards. Help protect birds as they pass through your region by turning off all non-essential lighting from 11:00PM tonight until 6:00AM tomorrow morning. [Learn more](#)

[Subscribe to alerts](#)

3-night migration forecast ⓘ

Thu, Sep 29 High >10,000 birds/km/night	Fri, Sep 30 Medium 7,000-10,000 birds/km/night	Sat, Oct 1 Medium 7,000-10,000 birds/km/night
-------------------------------------------------------------	--------------------------------------------------------------------	-------------------------------------------------------------------

Lights Out Alerts BirdCast

Duluth, MN, USA Change location

Tonight's migration forecast ⓘ
Night of Thursday, September 29

Low 0-14,000 birds/km/night

No lights out alert

No Lights Out Alert has been issued for this region. However, a low/medium amount of birds are forecast to migrate over this area overnight. Bright lights attract and disorient nocturnally migrating birds, potentially causing fatal collisions with buildings or exposure to additional day time hazards. You can still help protect any birds that pass through your region tonight by turning off all non-essential lighting from 11:00PM tonight until 6:00AM tomorrow morning. [Learn more](#)

[Subscribe to alerts](#)

3-night migration forecast ⓘ

Thu, Sep 29 Low 0-14,000 birds/km/night	Fri, Sep 30 Low 0-14,000 birds/km/night	Sat, Oct 1 Low 0-14,000 birds/km/night
-------------------------------------------------------------	-------------------------------------------------------------	------------------------------------------------------------

Lights Out Alerts BirdCast

New York, NY, USA Change location

Tonight's migration forecast ⓘ
Night of Thursday, September 29

High >6,000 birds/km/night

Lights Out Alert
Turn off your lights tonight to save migrating birds.

A Lights Out Alert has been issued for this region. Large numbers of birds are forecast to migrate over this area overnight. Bright lights attract and disorient nocturnally migrating birds, potentially causing fatal collisions with buildings or exposure to additional day time hazards. Help protect birds as they pass through your region by turning off all non-essential lighting from 11:00PM tonight until 6:00AM tomorrow morning. [Learn more](#)

[Subscribe to alerts](#)

3-night migration forecast ⓘ

Thu, Sep 29 High >6,000 birds/km/night	Fri, Sep 30 High >6,000 birds/km/night	Sat, Oct 1 High >6,000 birds/km/night
------------------------------------------------------------	------------------------------------------------------------	-----------------------------------------------------------

Lights Out Alerts BirdCast

Houston, TX Change location

Tonight's migration forecast ⓘ
Night of Thursday, September 29

High >23,000 birds/km/night

Lights Out Alert
Turn off your lights tonight to save migrating birds.

A Lights Out Alert has been issued for this region. Large numbers of birds are forecast to migrate over this area overnight. Bright lights attract and disorient nocturnally migrating birds, potentially causing fatal collisions with buildings or exposure to additional day time hazards. Help protect birds as they pass through your region by turning off all non-essential lighting from 11:00PM tonight until 6:00AM tomorrow morning. [Learn more](#)

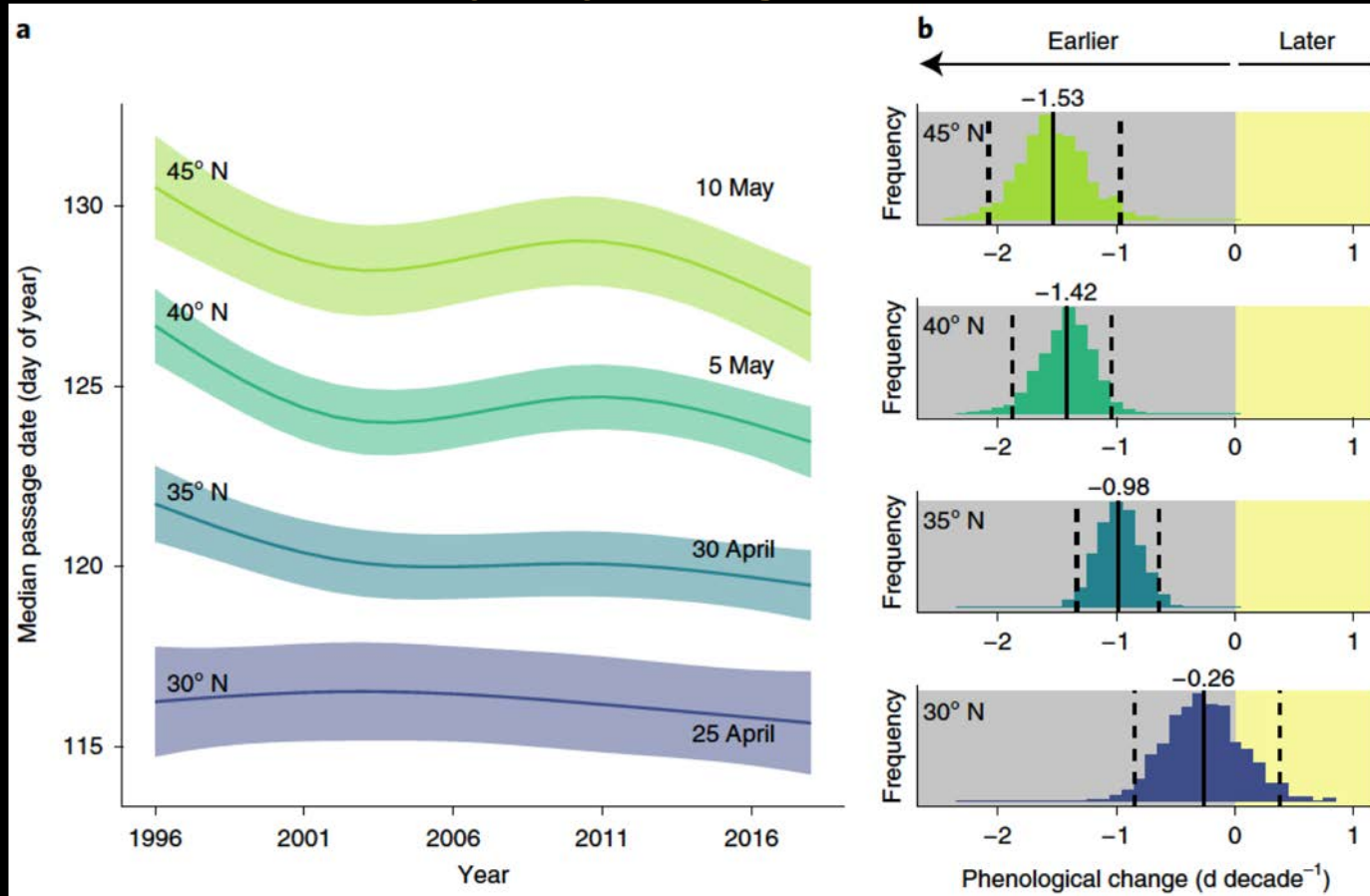
[Subscribe to alerts](#)

3-night migration forecast ⓘ

Thu, Sep 29 High >23,000 birds/km/night	Fri, Sep 30 Medium 11,000-23,000 birds/km/night	Sat, Oct 1 High >23,000 birds/km/night
-------------------------------------------------------------	---------------------------------------------------------------------	------------------------------------------------------------

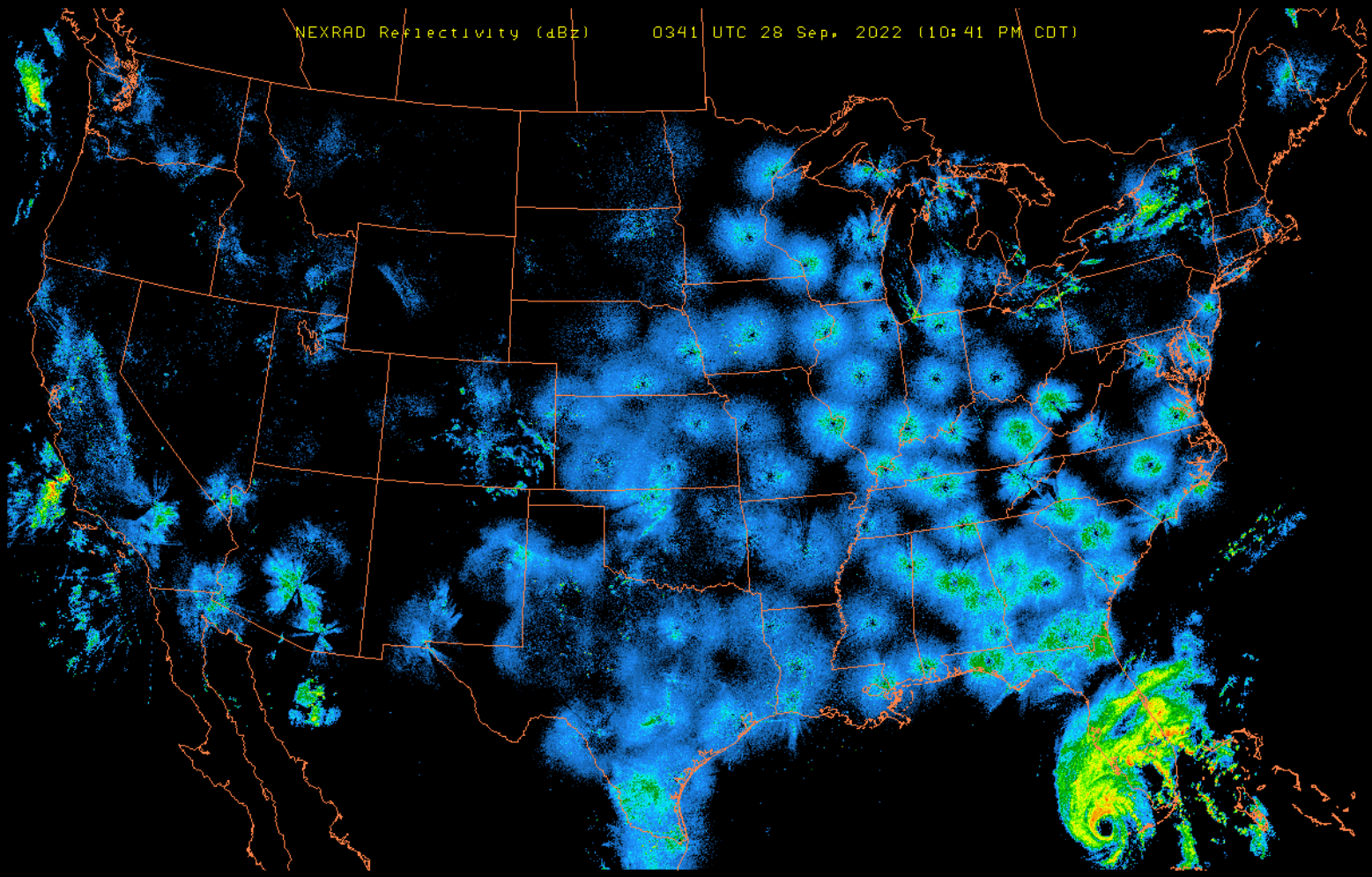
Visit the CSU AeroEco Lab for state and national visualizations: aeroecolab.com/uslights

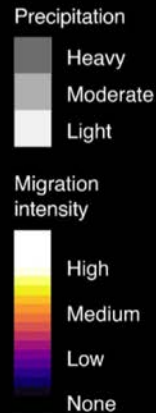
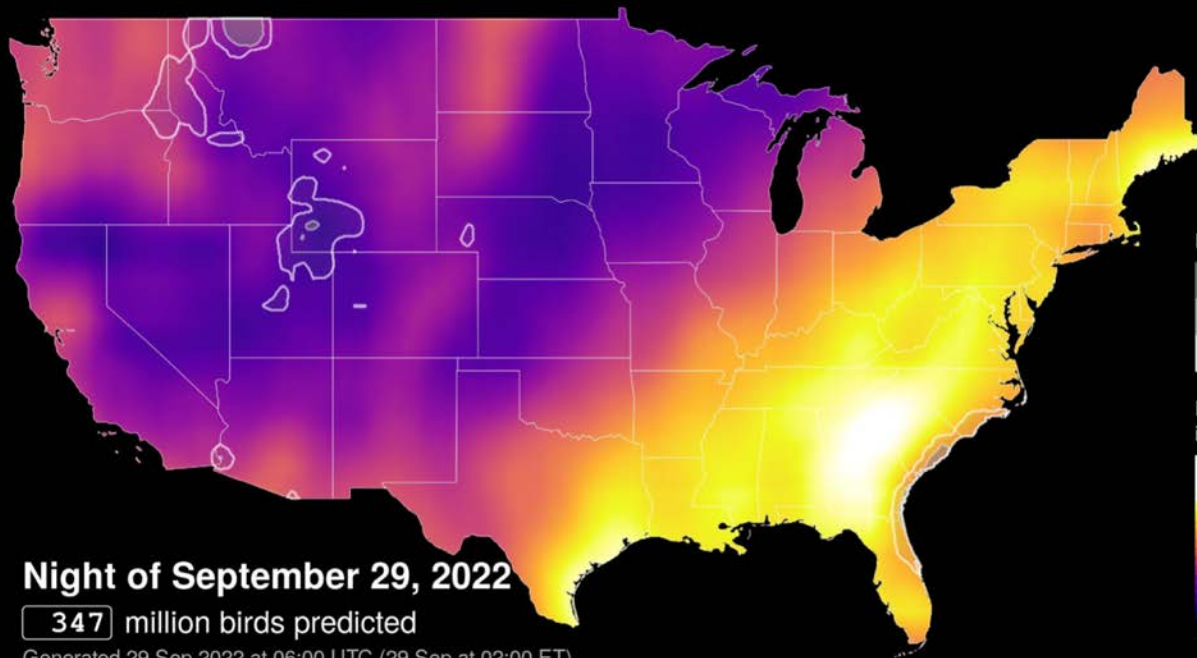
Timing of peak bird migration is advancing across the US, more rapidly at higher latitudes



NEXRAD Reflectivity (dBz)

0341 UTC 28 Sep, 2022 (10:41 PM CDT)





Night of September 29, 2022

347 million birds predicted

Generated 29 Sep 2022 at 06:00 UTC (29 Sep at 02:00 ET)

Bird migration forecast

Van Doren and Horton 2022

BirdCast

