

Evaluating the influence of development on mule deer migration and phenology tracking

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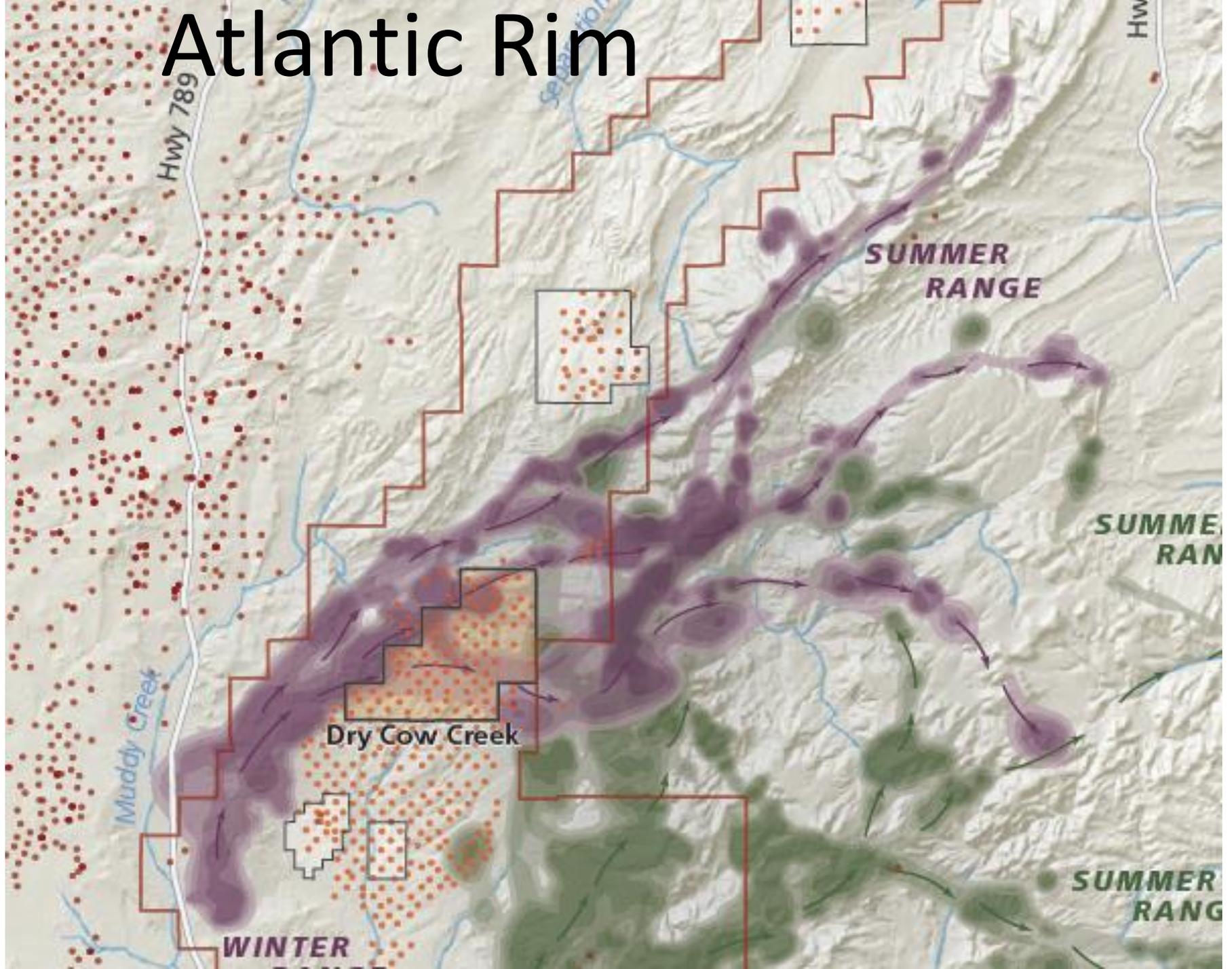
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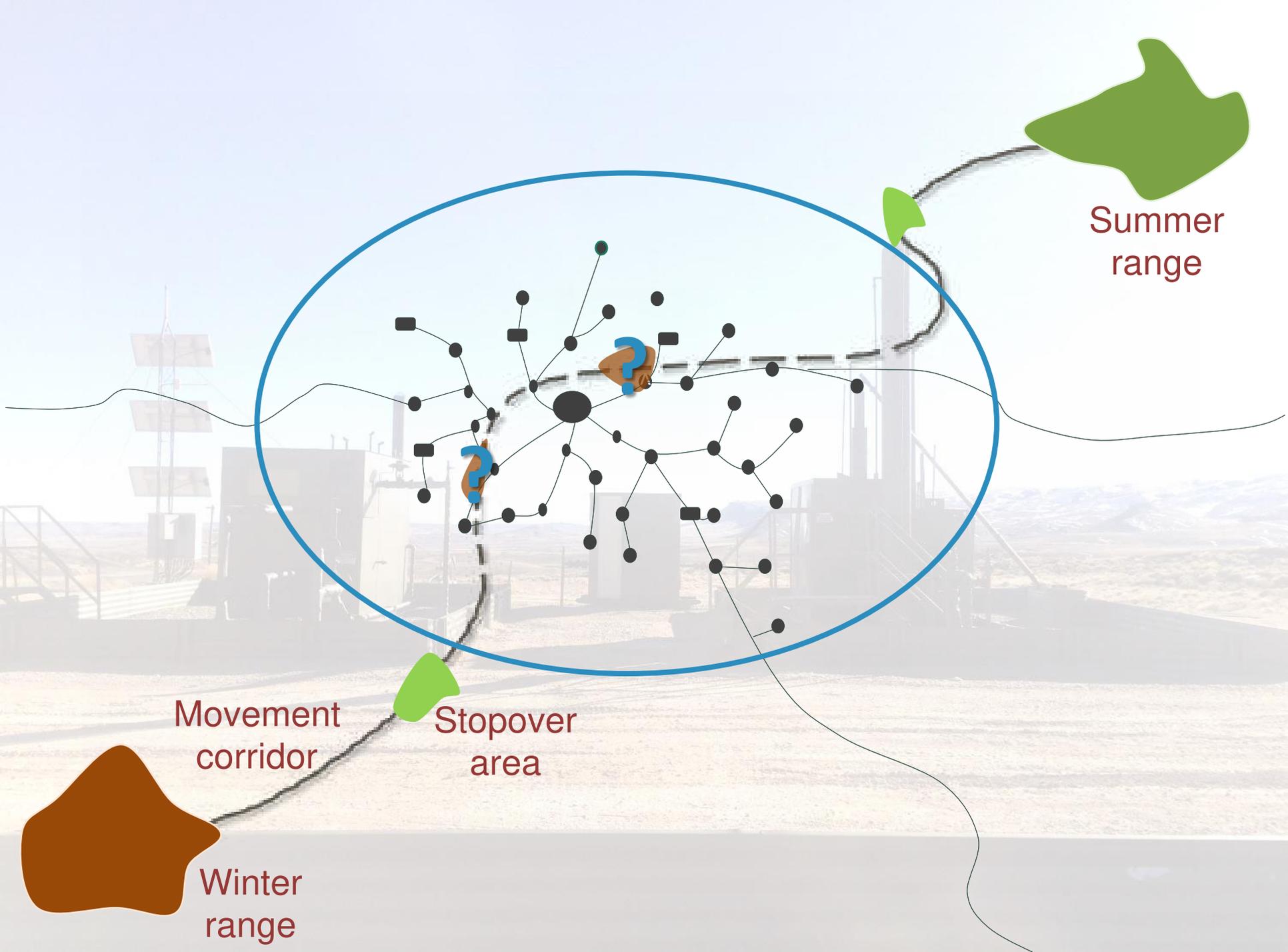
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WYTWS, SRTM, November 2016



Atlantic Rim





Summer range

Movement corridor

Stopover area

Winter range

How do migrating deer respond to development?

Movement rate: increased

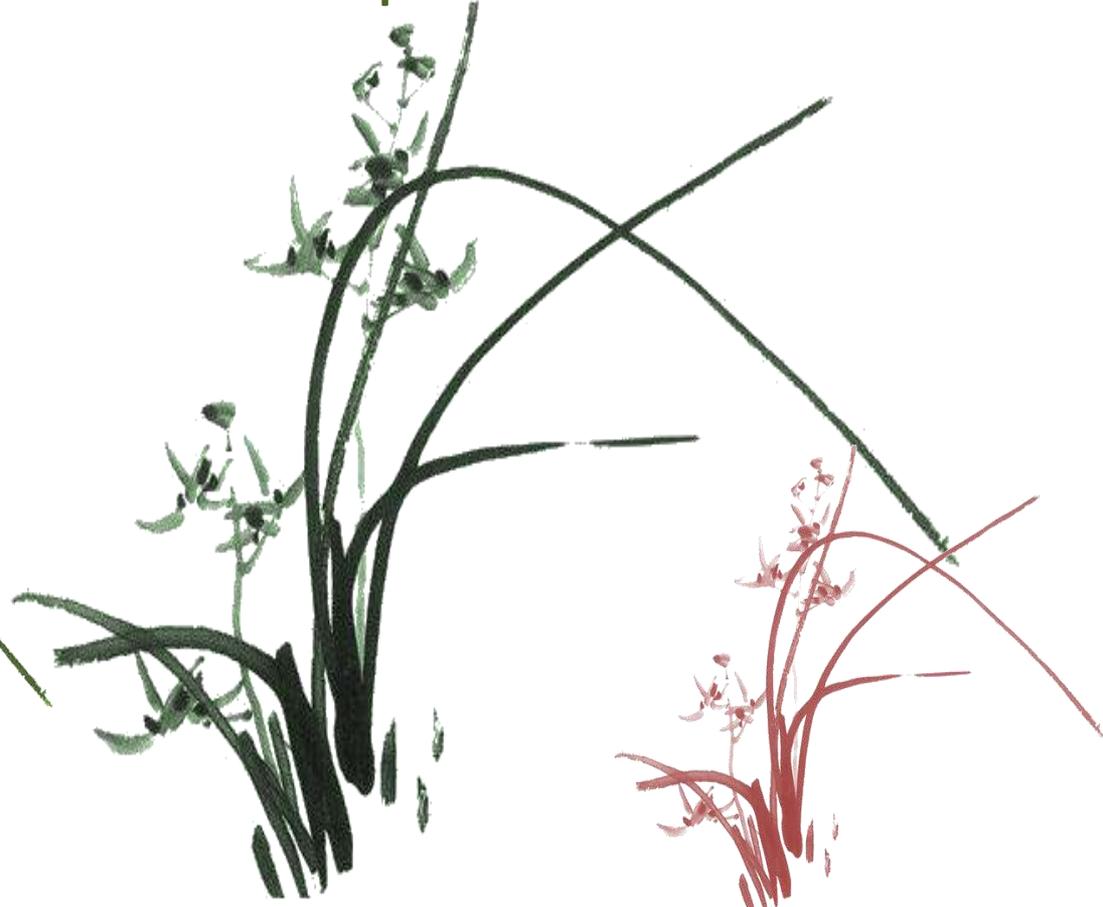
Stopovers: avoid development

Route fidelity: generally maintained

Nutrition

High fiber
Low protein

Low fiber
High protein



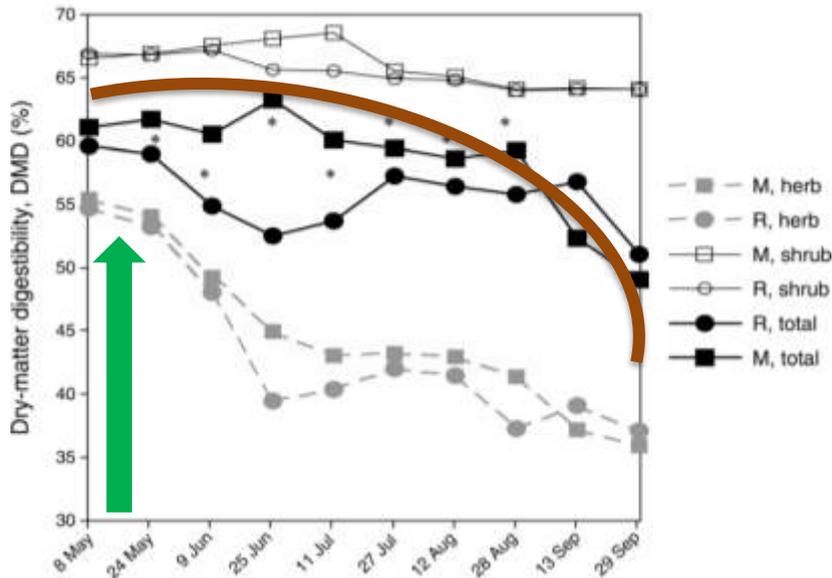
Winter

Spring

Summer

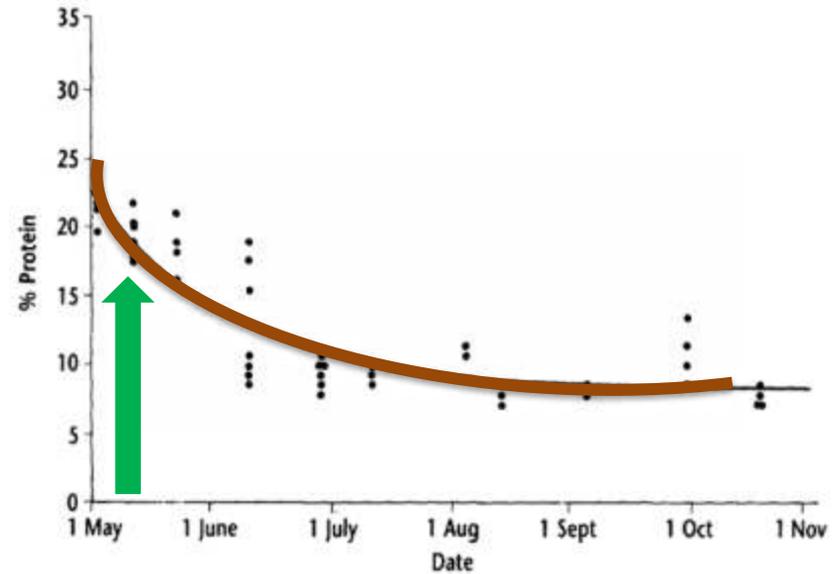
Autumn

Nutritional quality of early phenology



% dry-matter digestibility of herbs, shrubs, and total forage estimated for migrant and resident elk May to October.

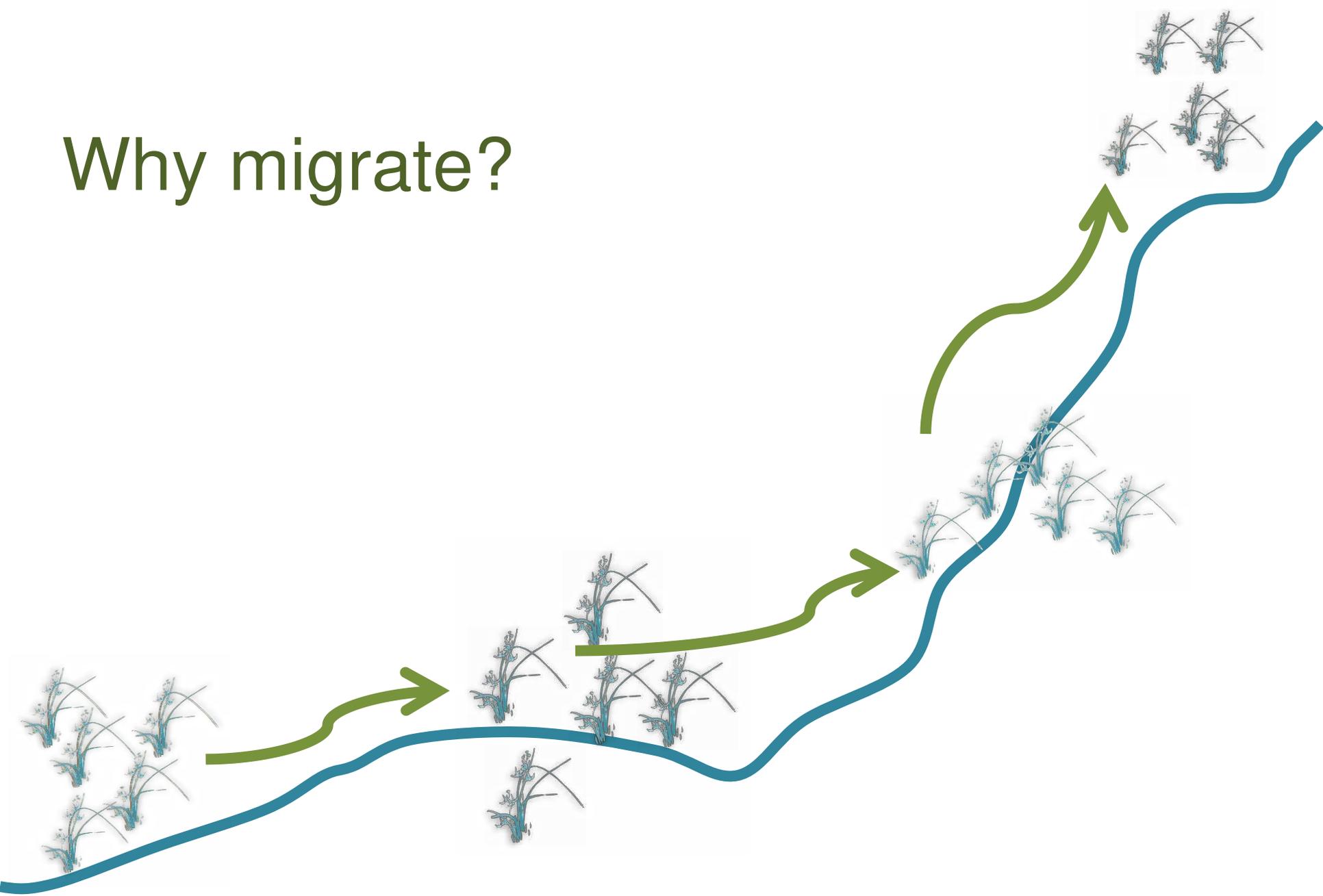
- Hebblewhite, Merrill and McDermid, 2008



Decline in crude protein (%) of gaminoids and herbs grazed by red deer.

- Albon and Langvatn, 1992

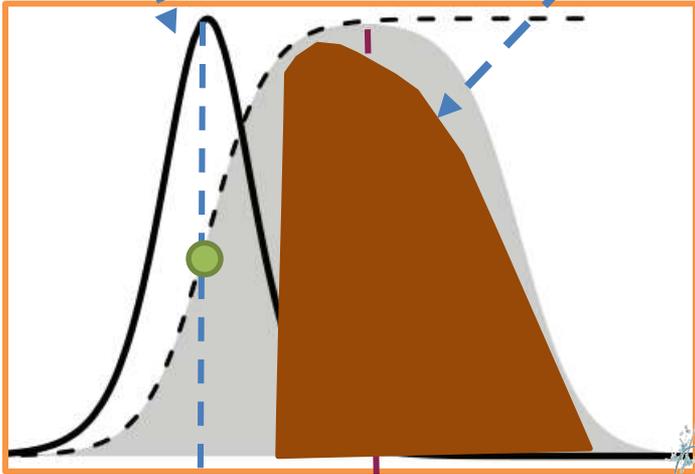
Why migrate?



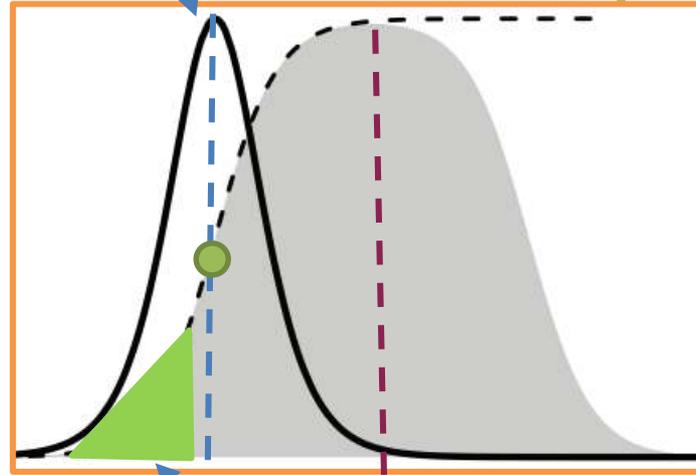
Does development
alter the ability of mule deer to
surf the green wave?

Phenological mismatch?

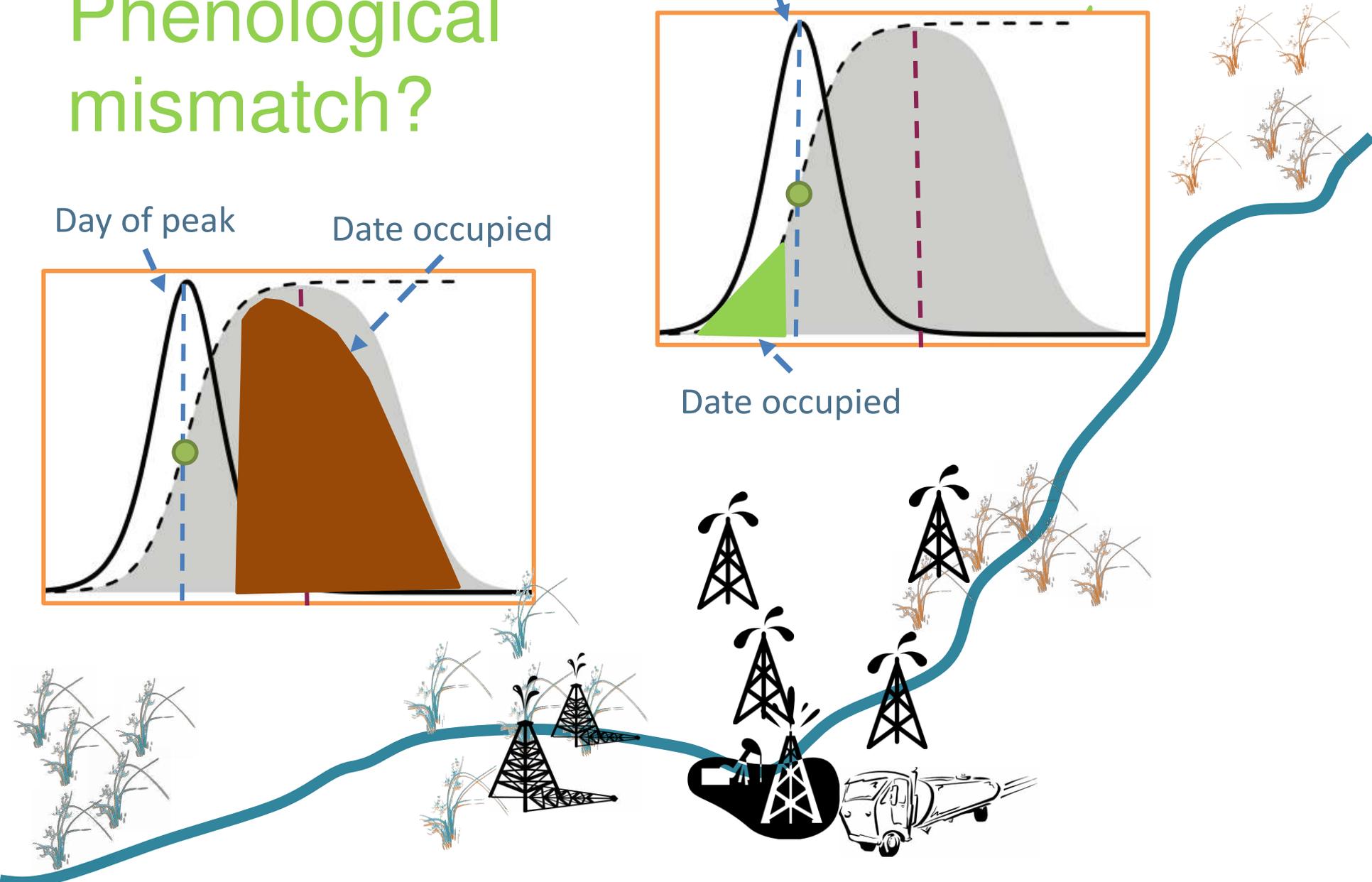
Day of peak Date occupied



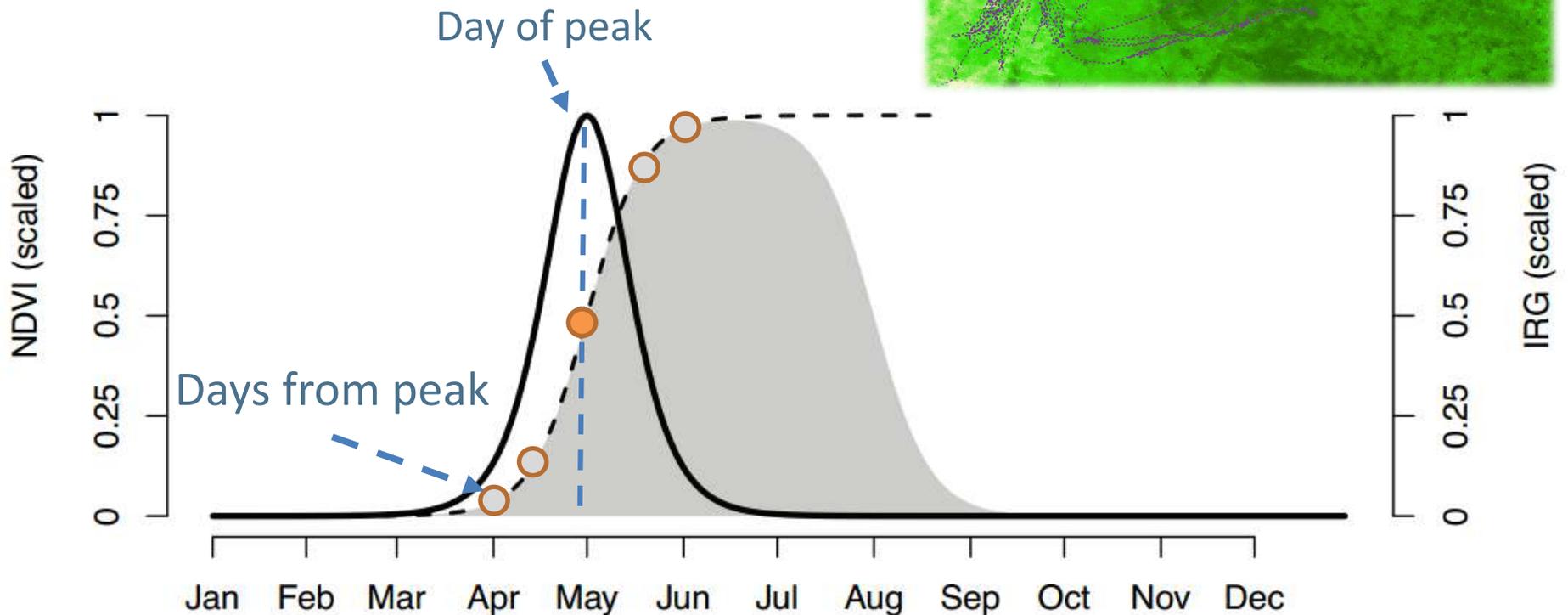
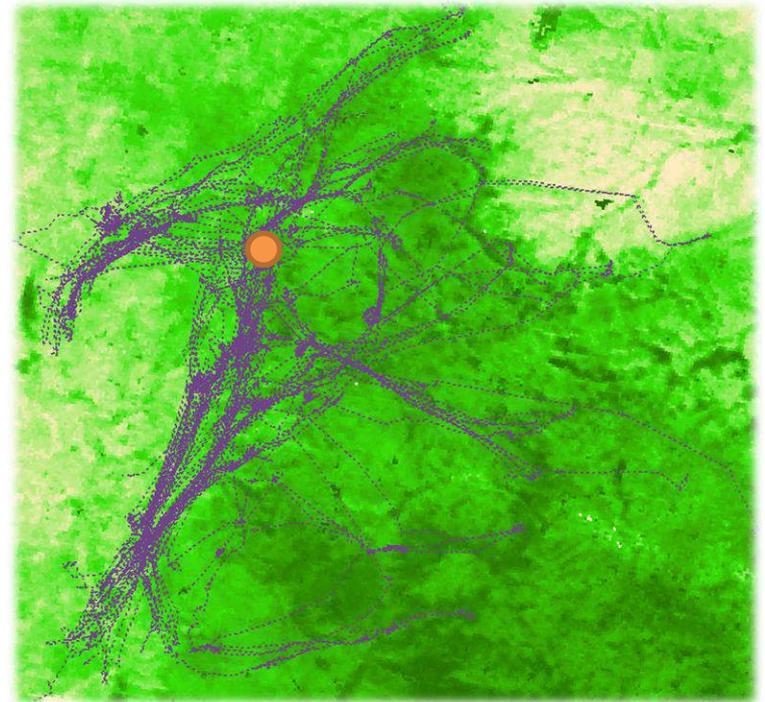
Day of peak



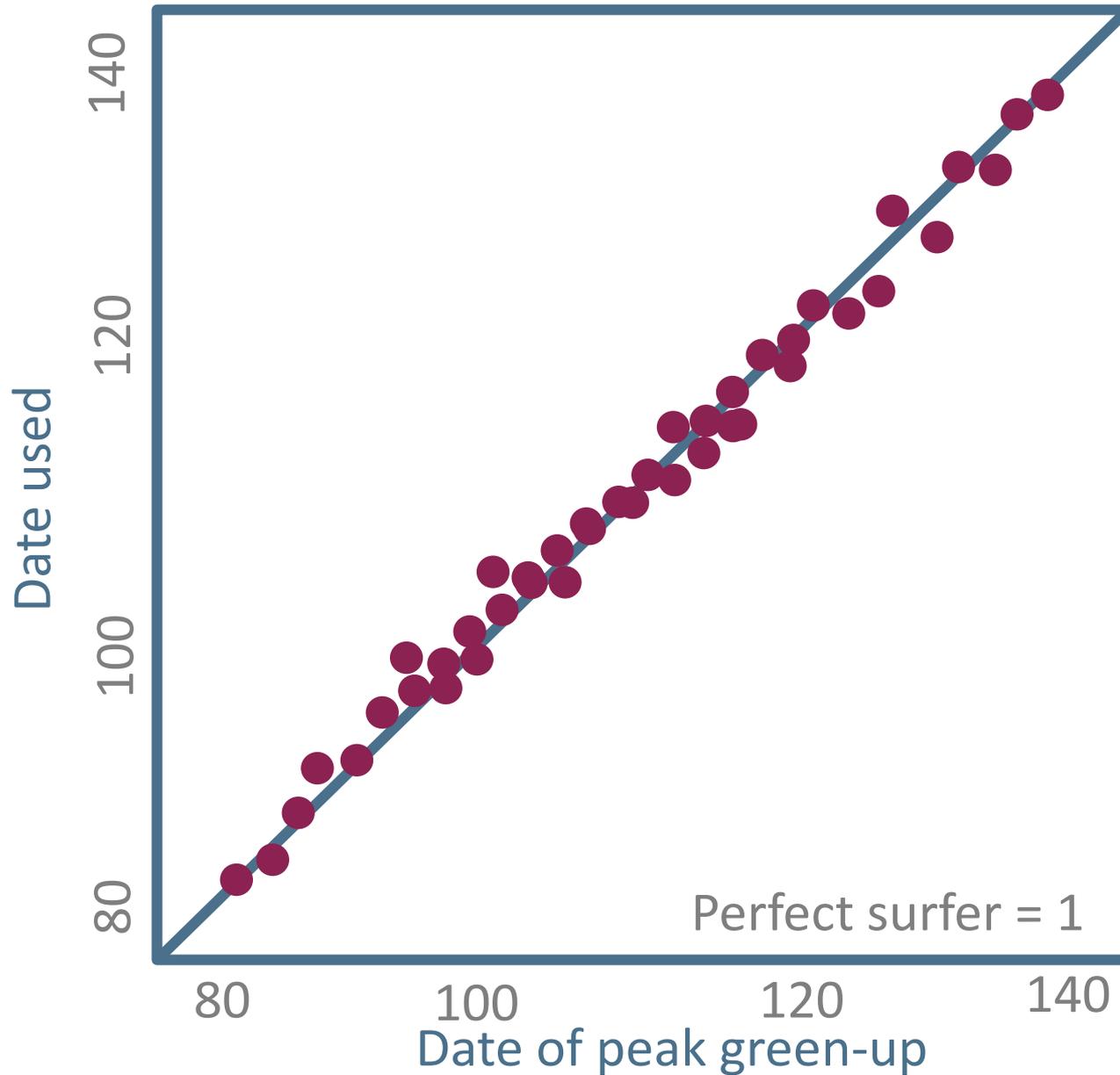
Date occupied



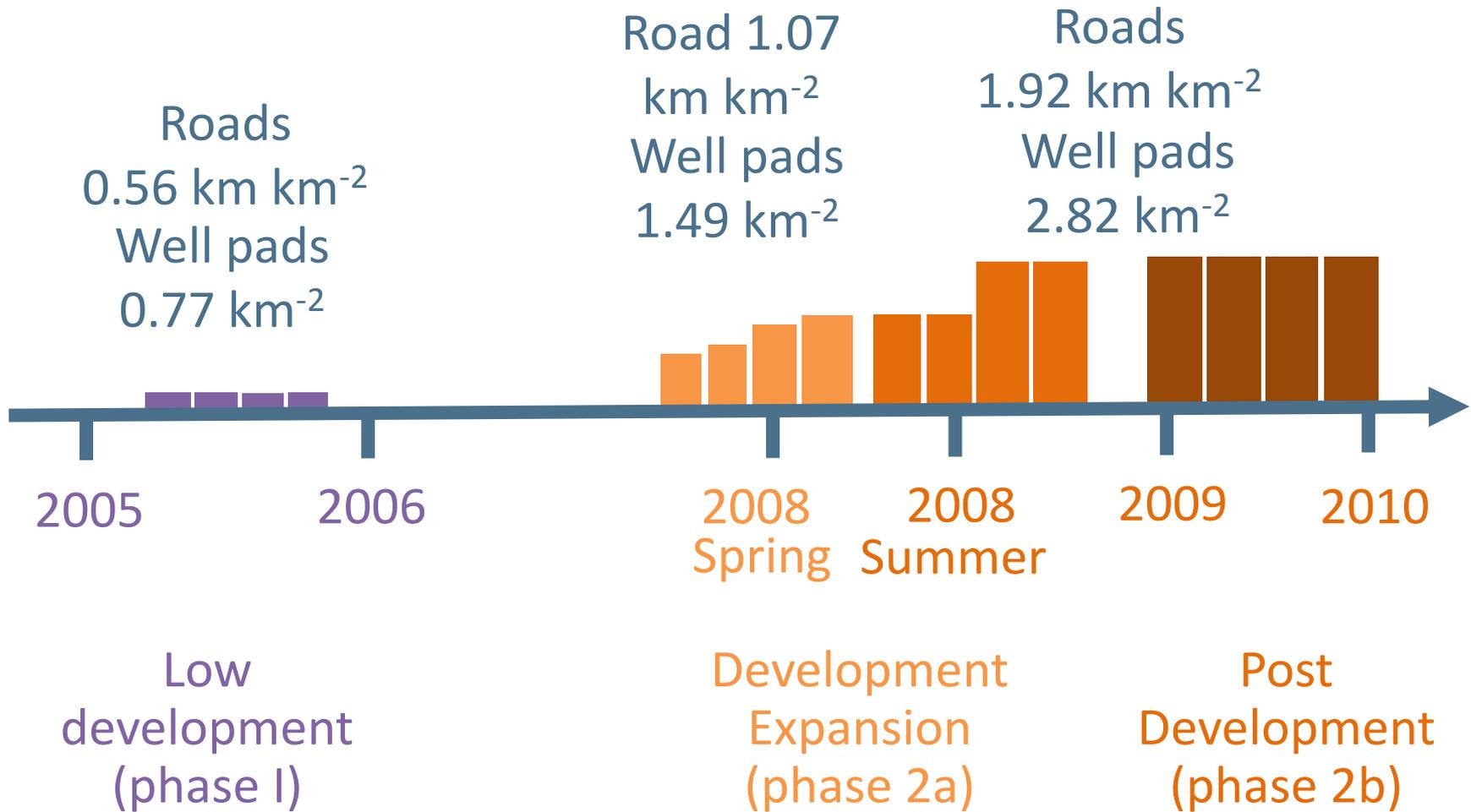
Phenological mismatch



What is perfect surfing?



Timeline of Atlantic Rim development

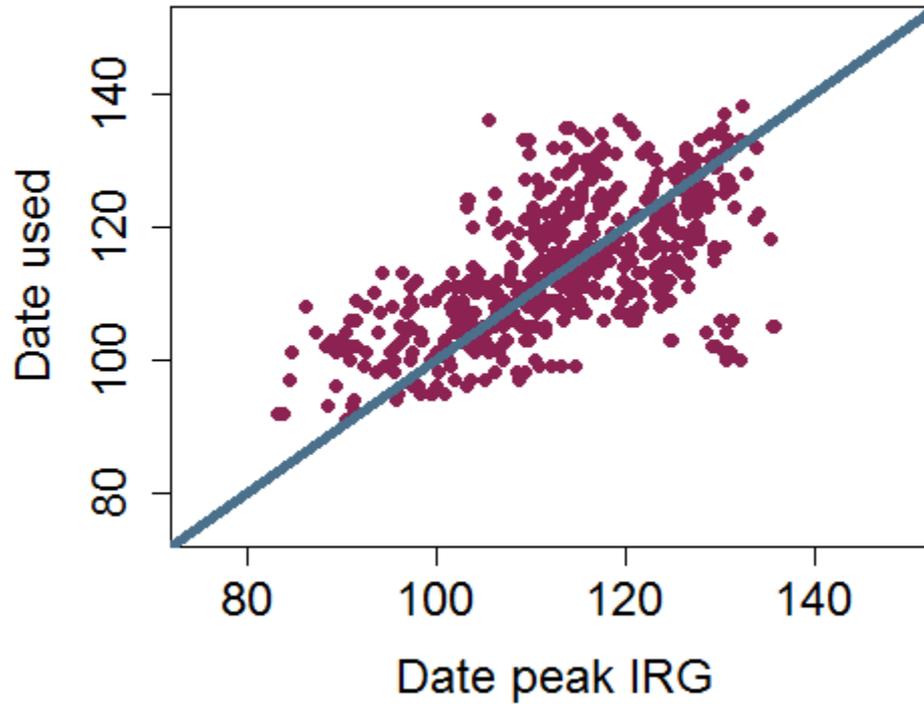


Surfing ability



2005

2005

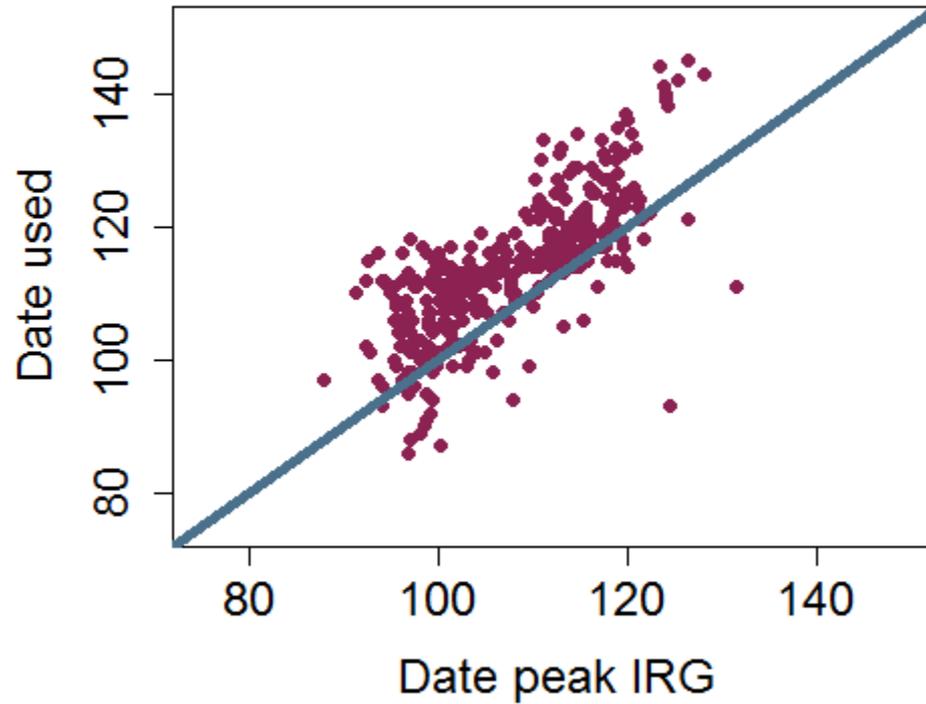


Surfing ability



2006

2006

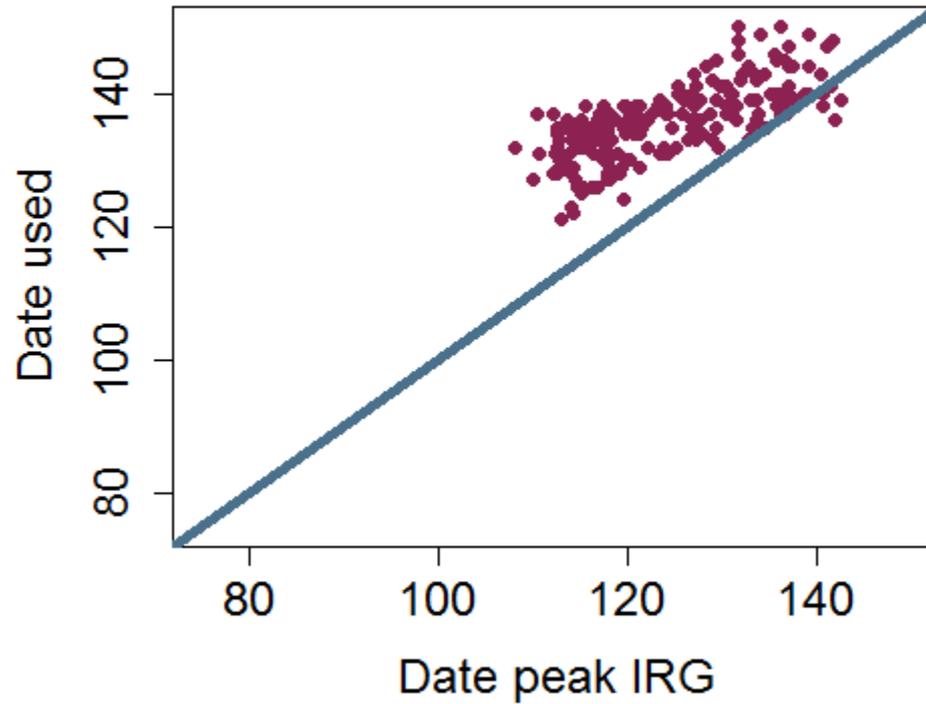


Surfing ability



2008 2008

2008

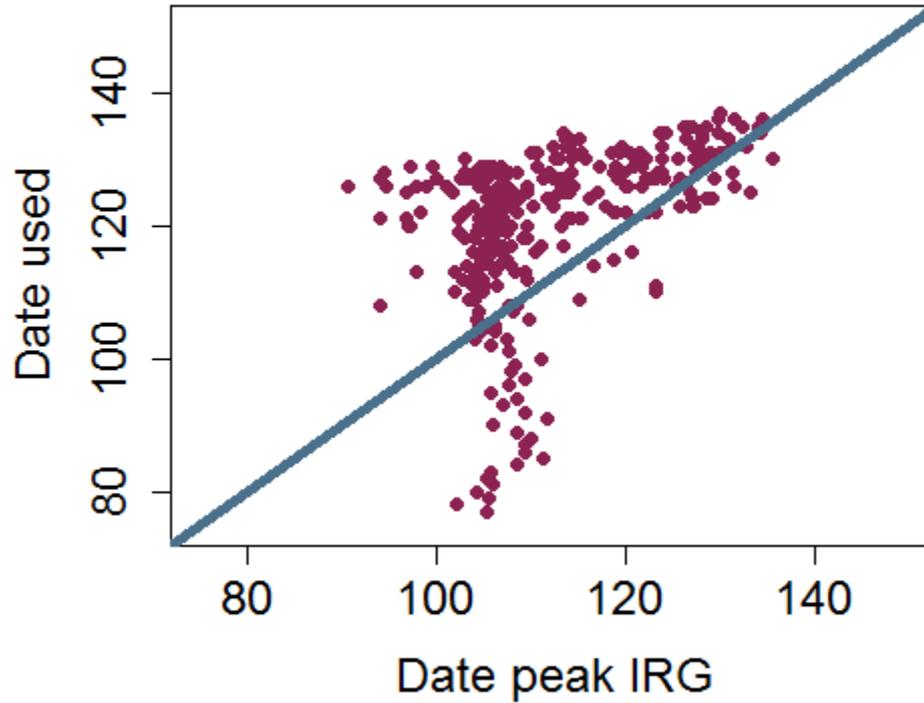


Surfing ability



2009

2009

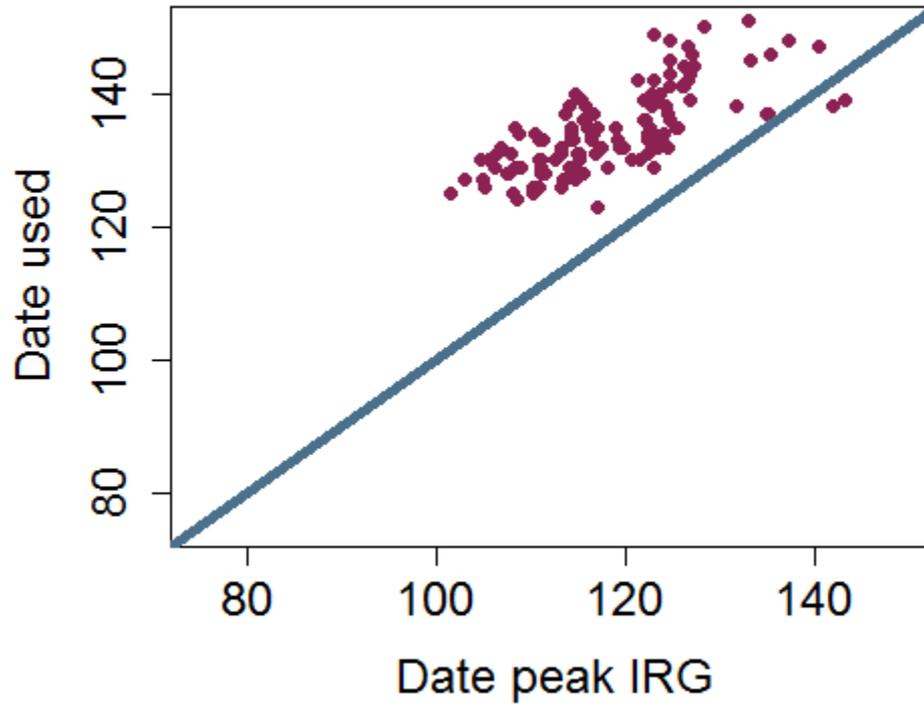


Surfing ability

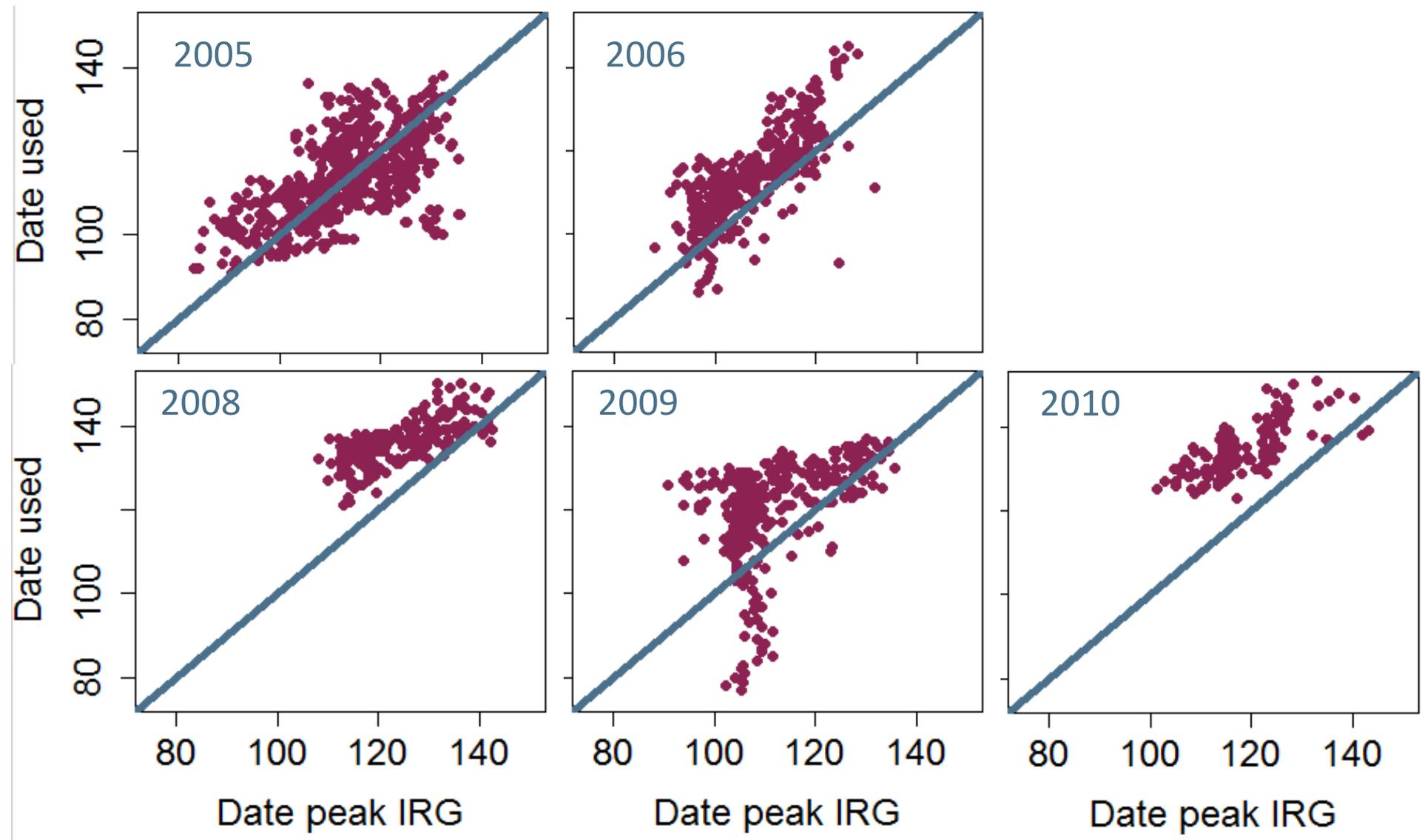
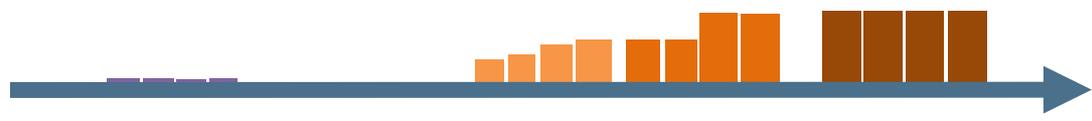


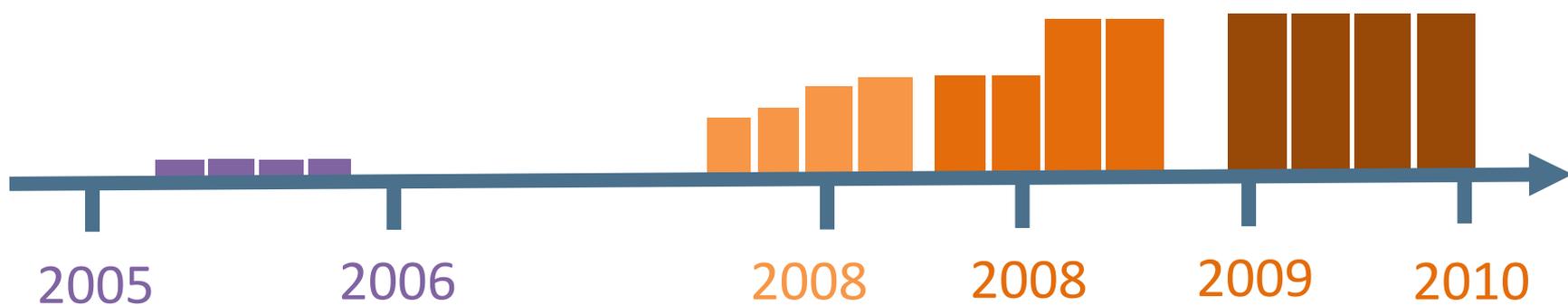
2010

2010

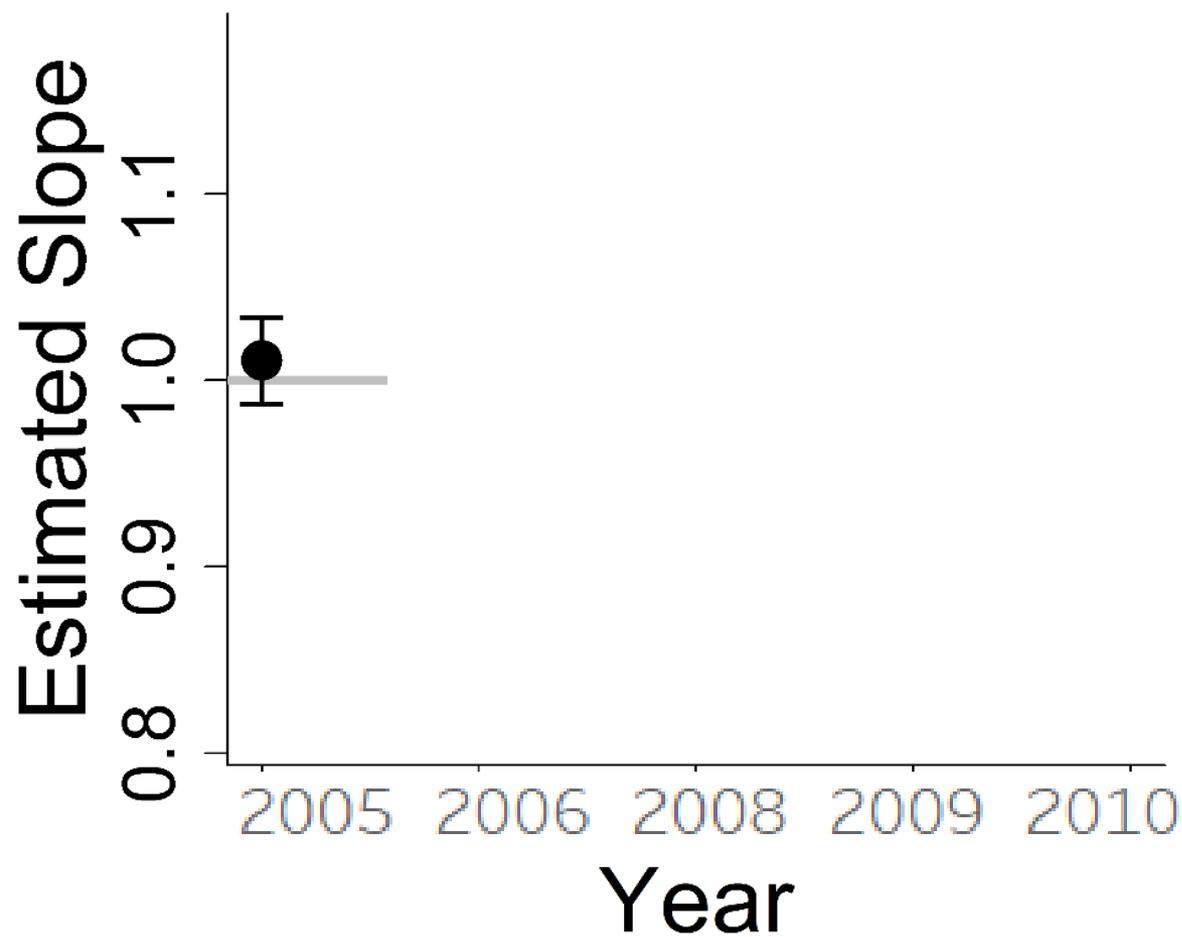


Surfing ability

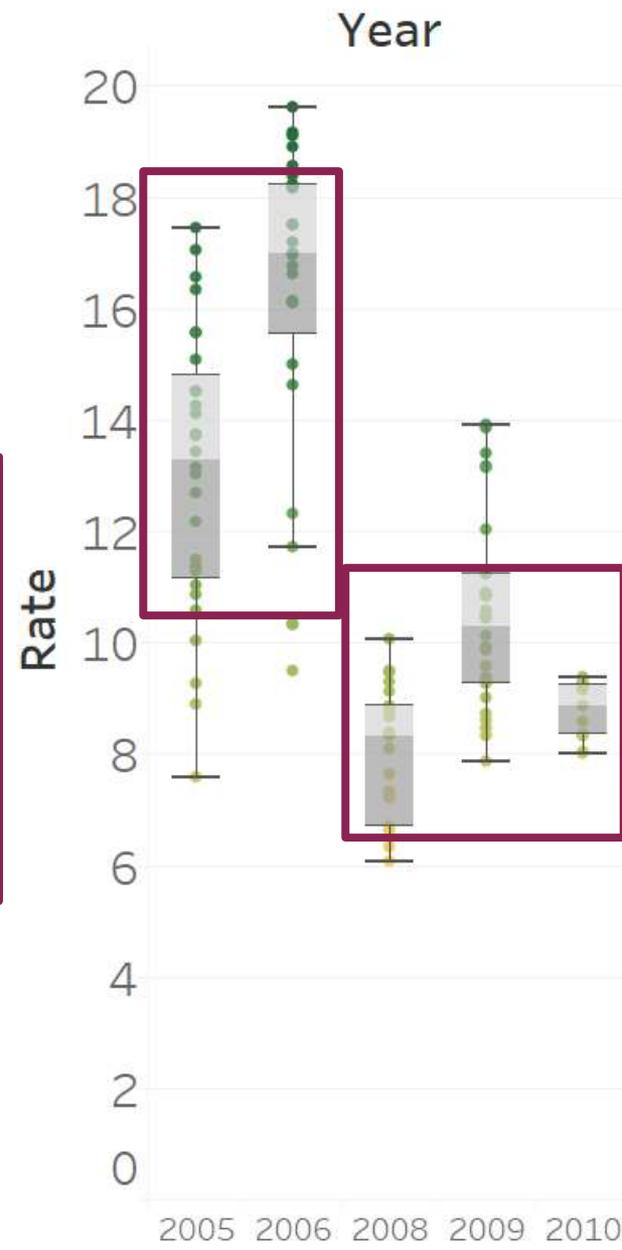
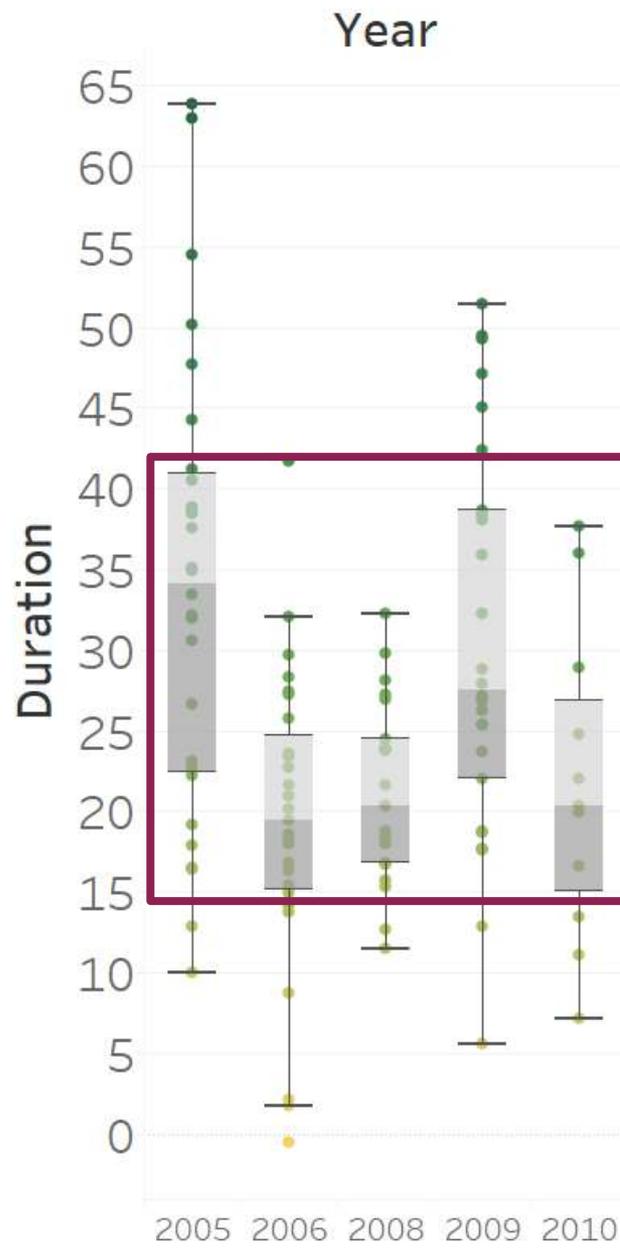
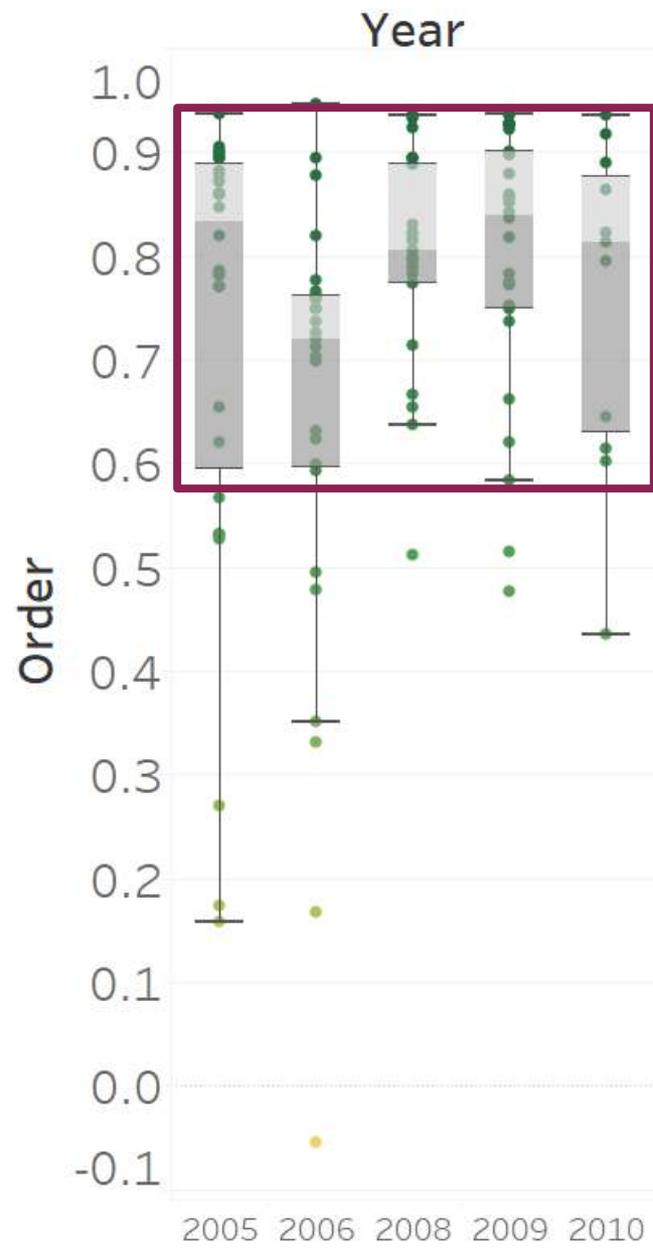
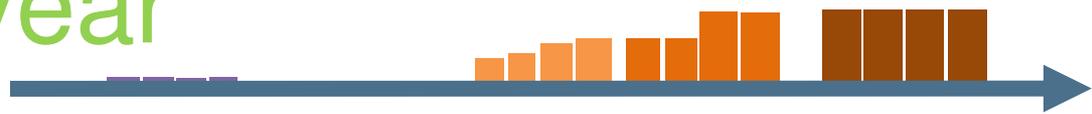




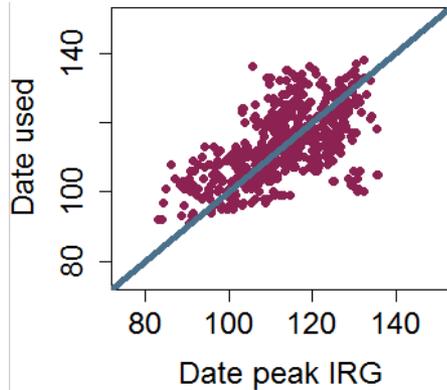
Evaluation of
green wave
surfing by
year



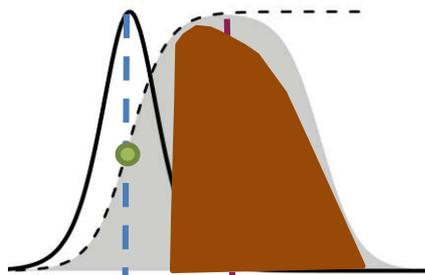
Greenscape by year



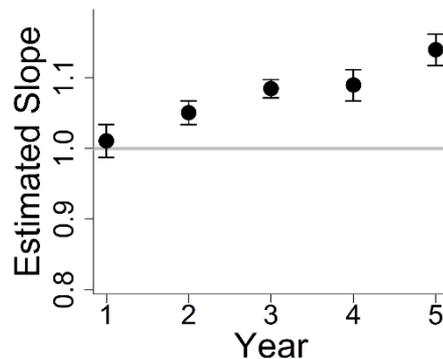
Summary



Deer track phenology



Rapid development
= mismatch



Tracking ability decreased
through time

Management and Conservation





WYOMING WILDLIFE
THE FOUNDATION



Thank You

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Wyoming Landscape Conservation Initiative

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Data Partners

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