

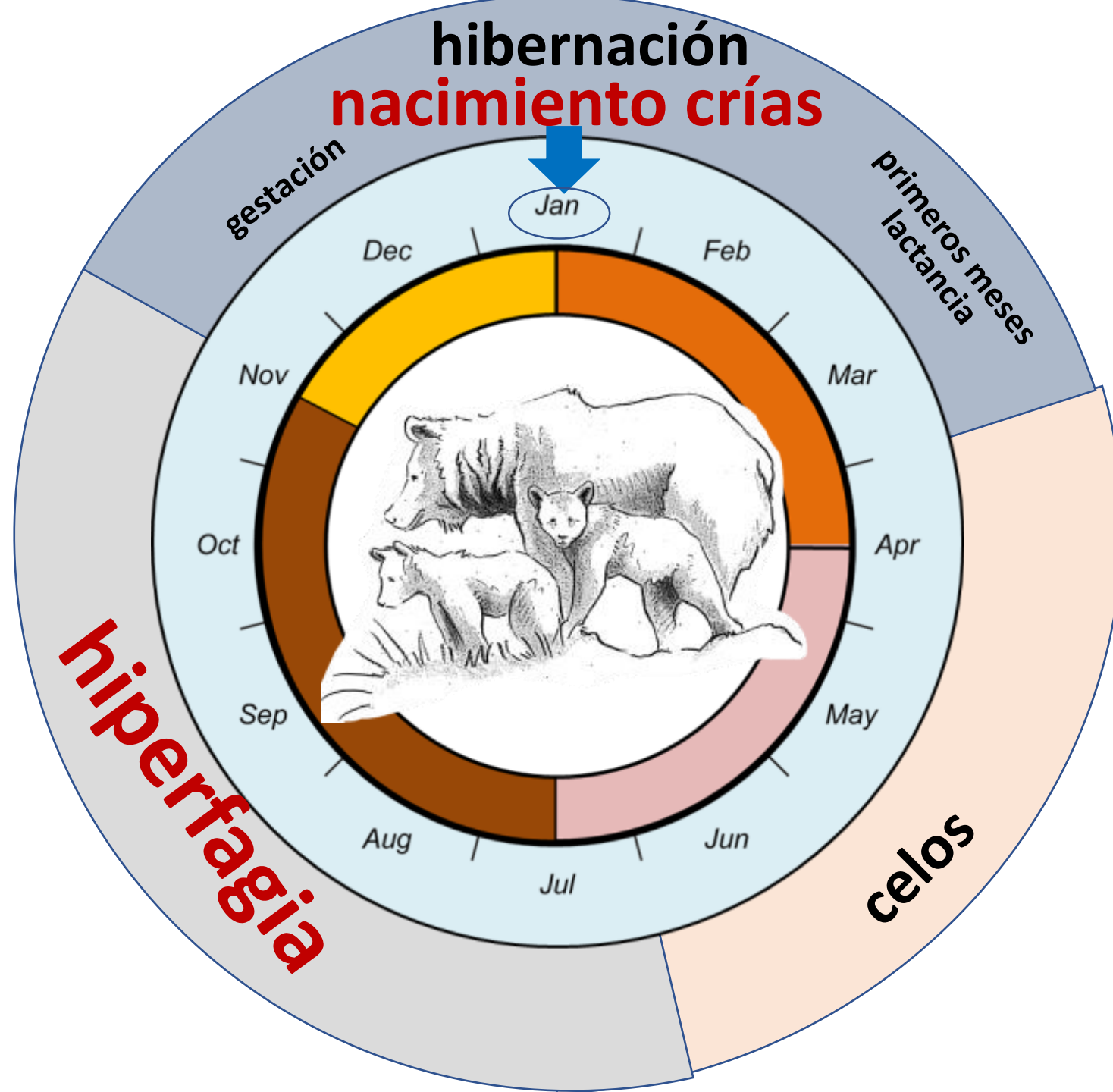
# Ecología y Comportamiento del Oso Pardo

Javier Naves

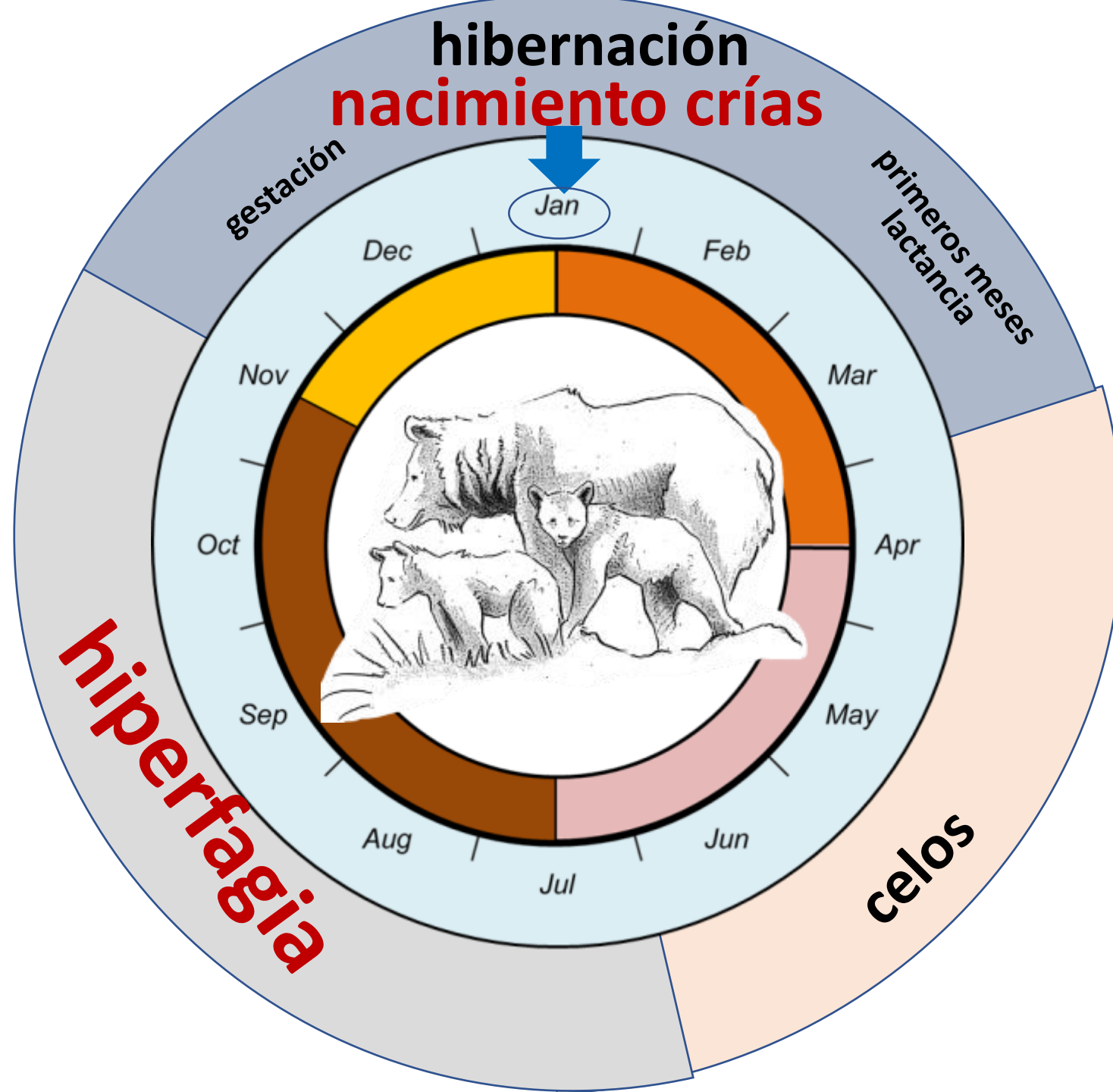
Estación Biológica de Doñana-CSIC

[jnaves@ebd.csic.es](mailto:jnaves@ebd.csic.es)









# ESTIMATING THE SEASONAL ENERGY BALANCE IN ASIAN BLACK BEARS AND ASSOCIATED FACTORS

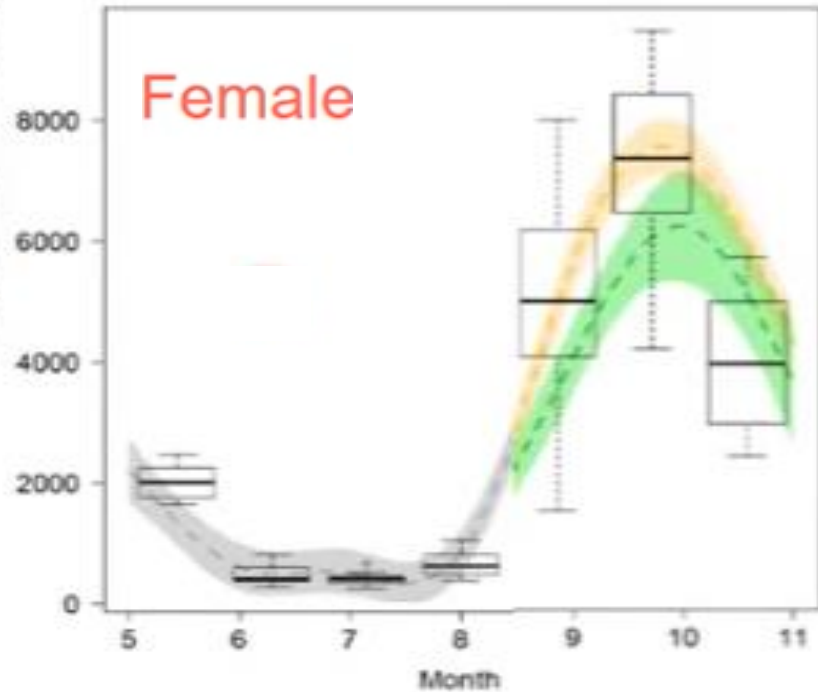
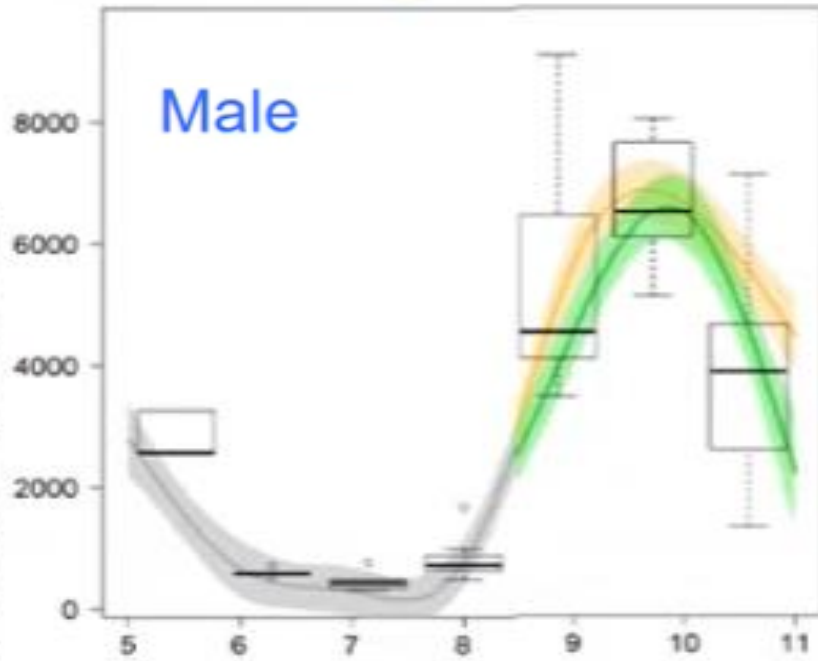
[Shinsuke Koike](#)<sup>1</sup>, [Shino Furusaka](#)<sup>1</sup>, [Kahoko Tochigi](#)<sup>1</sup>, [Koji Yamazaki](#)<sup>1</sup>, [Tomoko Naganuma](#)<sup>1</sup>, [Akino Inagaki](#)<sup>1</sup>



27<sup>th</sup> International  
Conference On Bear  
Research & Management

September 14<sup>th</sup> – 16<sup>th</sup> 2021  
September 21<sup>st</sup> – 23<sup>rd</sup> 2021

Digestive energy intake (kcal/day)



■ :: good masting year  
■ :: poor masting year

Brooks Camp

ANIMALS

## Stuffed With Sockeye Salmon, 'Holly' Wins 'Fat Bear Week' Heavyweight Title

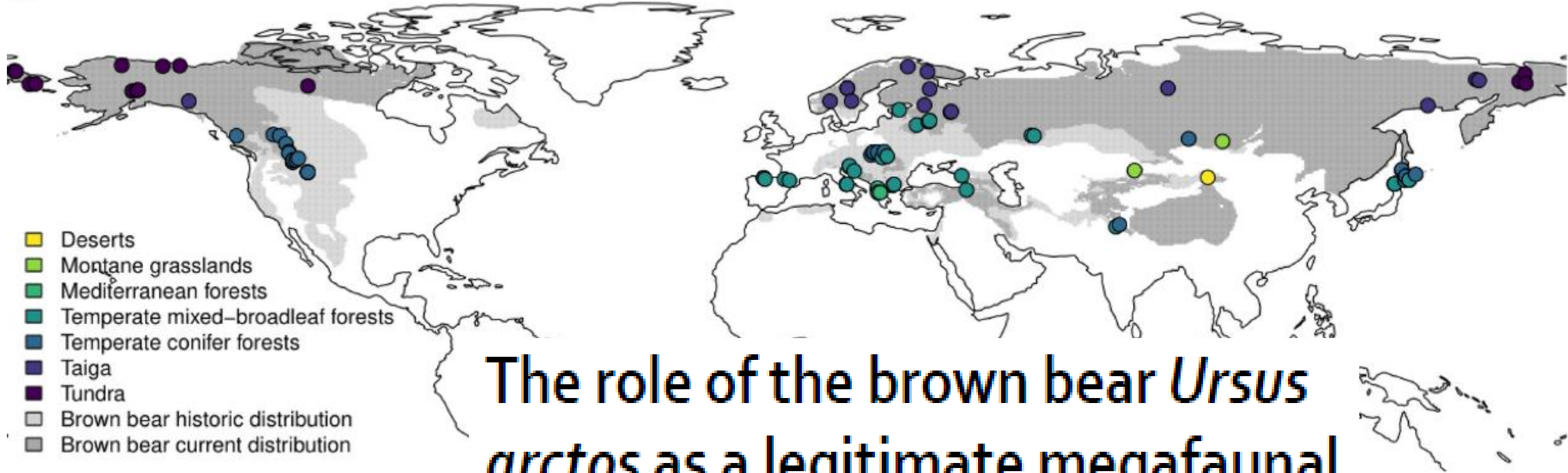
October 9, 2019 · 2:23 AM ET



Bear 435, aka "Holly," before and after her prehibernation weigh-in. Holly went on to win the final round in Fat Bear Week 2019.



a

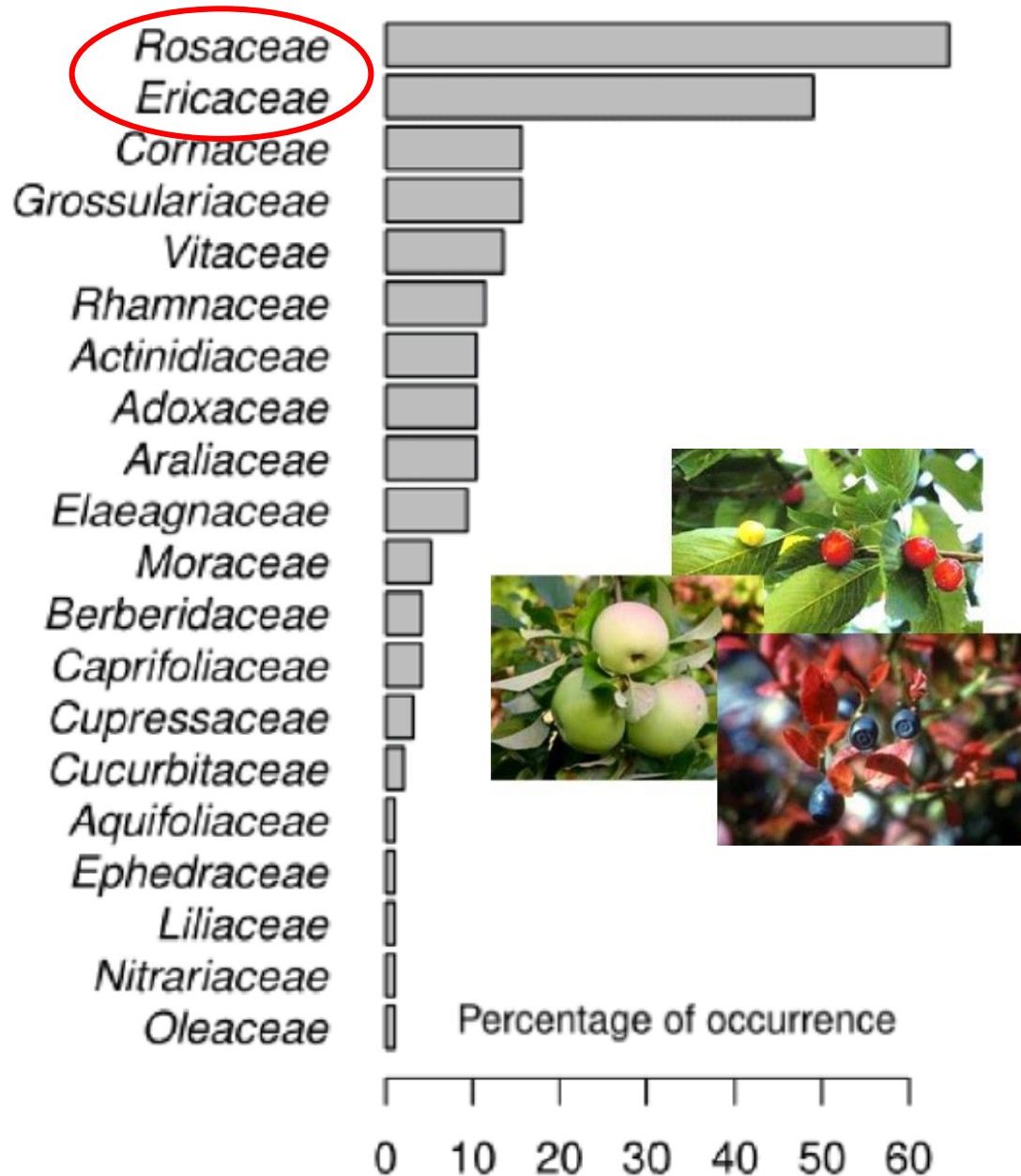


# The role of the brown bear *Ursus arctos* as a legitimate megafaunal seed disperser

Alberto García-Rodríguez<sup>1,2,3</sup>, Jörg Albrecht<sup>2</sup>, Sylwia Szczutkowska<sup>3</sup>, Alfredo Valido<sup>4</sup>,  
Nina Farwig<sup>5</sup> & Nuria Selva<sup>1</sup>

Scientific Reports | (2021) 11:1282

## b families



Biome	No. species/study area (mean $\pm$ SD)
Tundra	3.43 $\pm$ 1.22
Boreal forests and taiga	4.87 $\pm$ 3.40
Temperate coniferous forests	4.40 $\pm$ 3.80
Temperate mixed and broadleaf forests	5.53 $\pm$ 4.15
Montane grasslands and shrublands	5.00 $\pm$ 5.61
Mediterranean forests, woodlands and scrubs	7.25 $\pm$ 3.31
Deserts and xeric shrublands	1.00 $\pm$ NA
Average/total	4.78 $\pm$ 3.63

## The role of the brown bear *Ursus arctos* as a legitimate megafaunal seed disperser

Alberto García-Rodríguez<sup>1,3</sup>, Jörg Albrecht<sup>2</sup>, Sylwia Szczutkowska<sup>3</sup>, Alfredo Valido<sup>4</sup>, Nina Farwig<sup>5</sup> & Nuria Selva<sup>1</sup>

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Food items	<i>n</i>	Freq .	Vol (%)
<b>Fleshy fruits</b>			
<i>Arbutus</i>	1	1.1	0.5
<i>Arctostaphylos</i>	1	0.1	0.0
<i>Crataegus</i>	1	1.9	0.8
<i>Frangula</i>	1	1.9	1.5
* <i>Malus</i>	2	13.8	7.6
* <i>Prunus</i>	4	10.9	6.8
* <i>Rhamnus</i>	1	10	7.3
<i>Rosa</i>	1	1	0.5
* <i>Rubus</i>	3	7.9	3.1
* <i>Sorbus</i>	2	5.6	2.7
* <i>Vaccinium</i>	2	16.4	11.3
Other	6	0.5	0.2
Total fleshy fruits	25	58	42.4
<b>Hard mast</b>			
* <i>Castanea</i>	1	8.4	7
* <i>Corylus</i>	1	11.9	6.4
* <i>Fagus</i>	1	3	2.3
* <i>Quercus</i>	3	21.6	16
Total hard mast	7	41.6	31.6



## BROWN BEAR FOOD HABITS AT THE BORDER OF ITS RANGE: A LONG-TERM STUDY

JAVIER NAVES, ALBERTO FERNÁNDEZ-GIL, CARLOS RODRÍGUEZ,\* AND MIGUEL DELIBES

*Journal of Mammalogy*, 87(5):899–908, 2006



# Fam. Rosaceae



# Neotropical Anachronisms: The Fruits the Gomphotheres Ate

Daniel H. Janzen and Paul S. Martin  
SCIENCE, VOL. 215, 1 JANUARY 1982

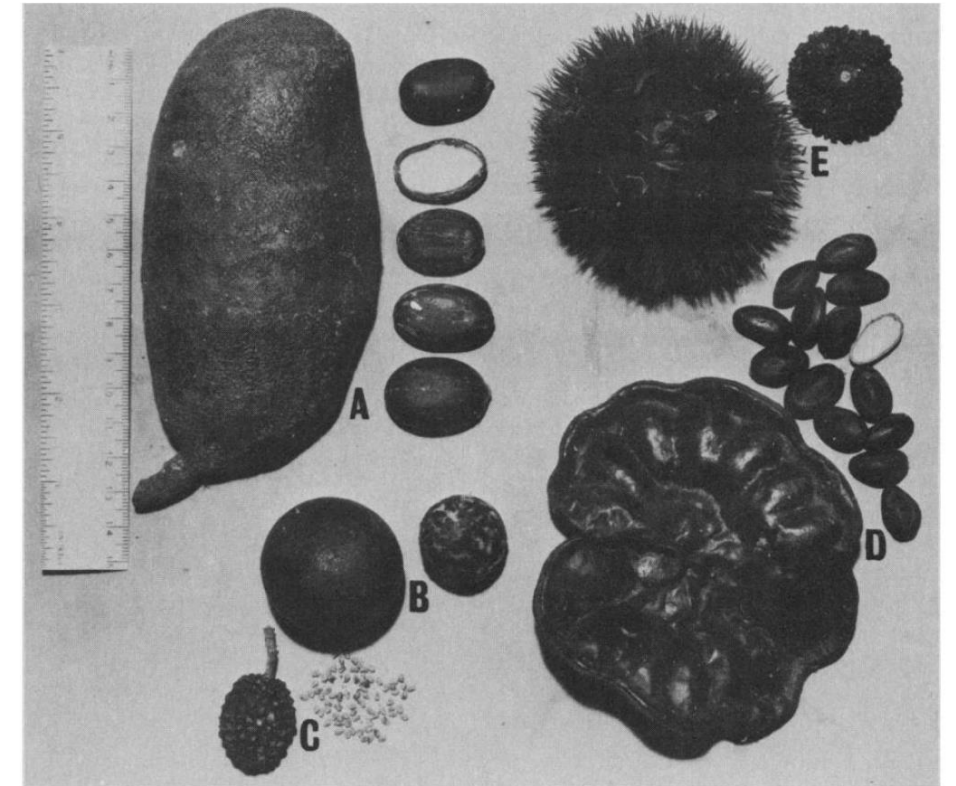
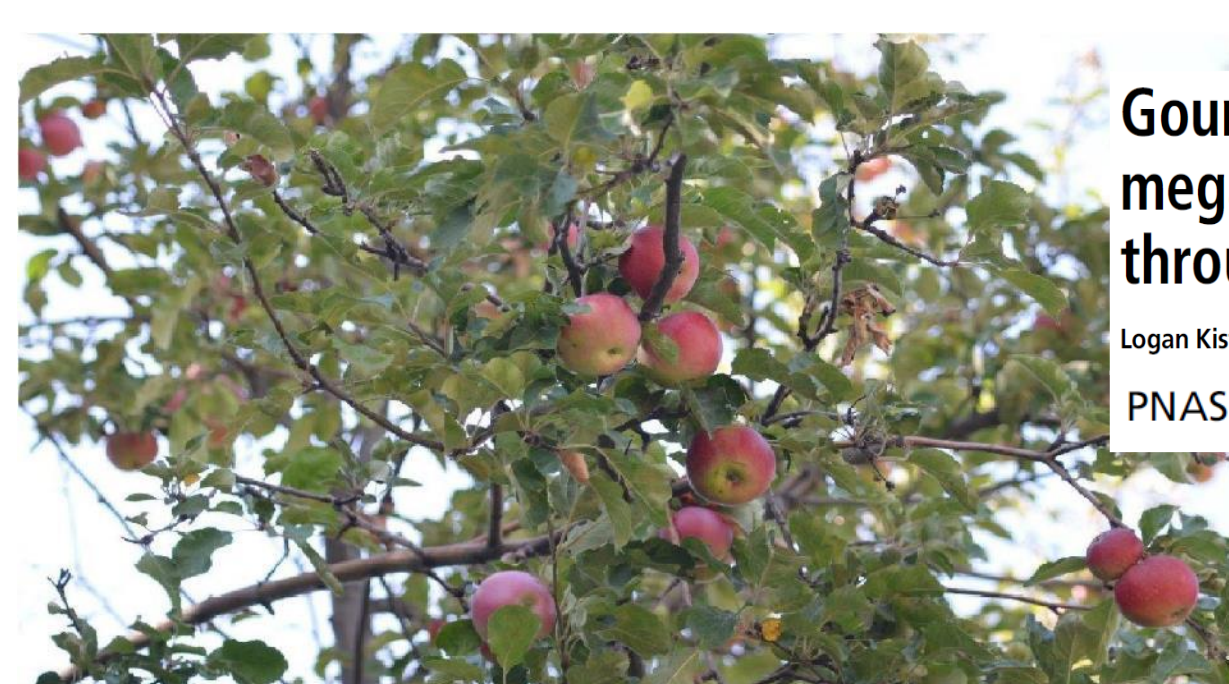


Fig. 2. Fruits and their seeds from Santa Rosa National Park that were probably dispersed by Pleistocene megafauna. The seeds to the right of each fruit represent a normal quantity of seeds found in each fruit. (A) *Hymenaea courbaril* (Leguminosae). (B) *Acrocomia vinifera* (Palmae). (C) *Guazuma ulmifolia* (Sterculiaceae). (D) *Enterolobium cyclocarpum* (Leguminosae). (E) *Apeiba tibourbou* (Tiliaceae) (19).





# Gourds and squashes (*Cucurbita* spp.) adapted to megafaunal extinction and ecological anachronism through domestication

Logan Kistler<sup>a,b,c,1</sup>, Lee A. Newsom<sup>a,d</sup>, Timothy M. Ryan<sup>a,e</sup>, Andrew C. Clarke<sup>f</sup>, Bruce D. Smith<sup>g,h</sup>, and George H. Perry<sup>a,b,1</sup>

PNAS | December 8, 2015 | vol. 112 | no. 49 | 15107–15112



## Origins of the Apple: The Role of Megafaunal Mutualism in the Domestication of *Malus* and Rosaceous Trees

Robert Nicholas Spengler\*

Frontiers in Plant Science | [www.frontiersin.org](http://www.frontiersin.org)  
May 2019 | Volume 10 | Article 617





**Machos: hasta 4.297 km<sup>2</sup>**  
**Hembras: hasta 1.002 km<sup>2</sup>**

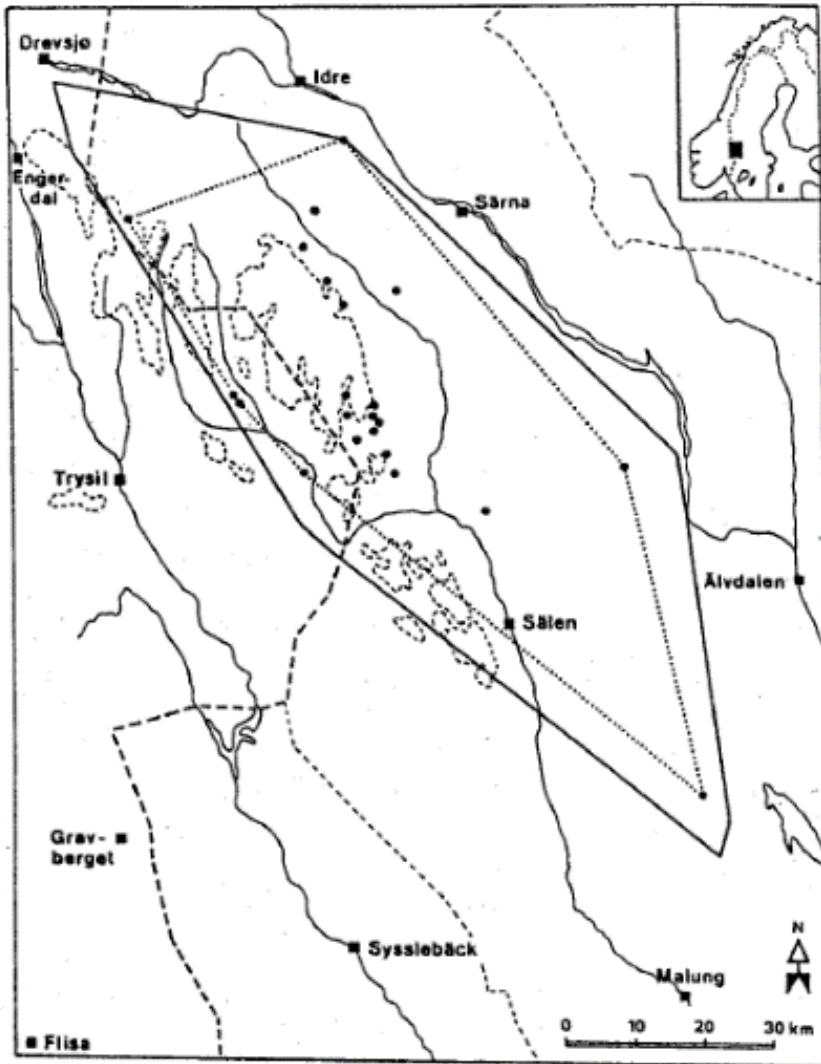
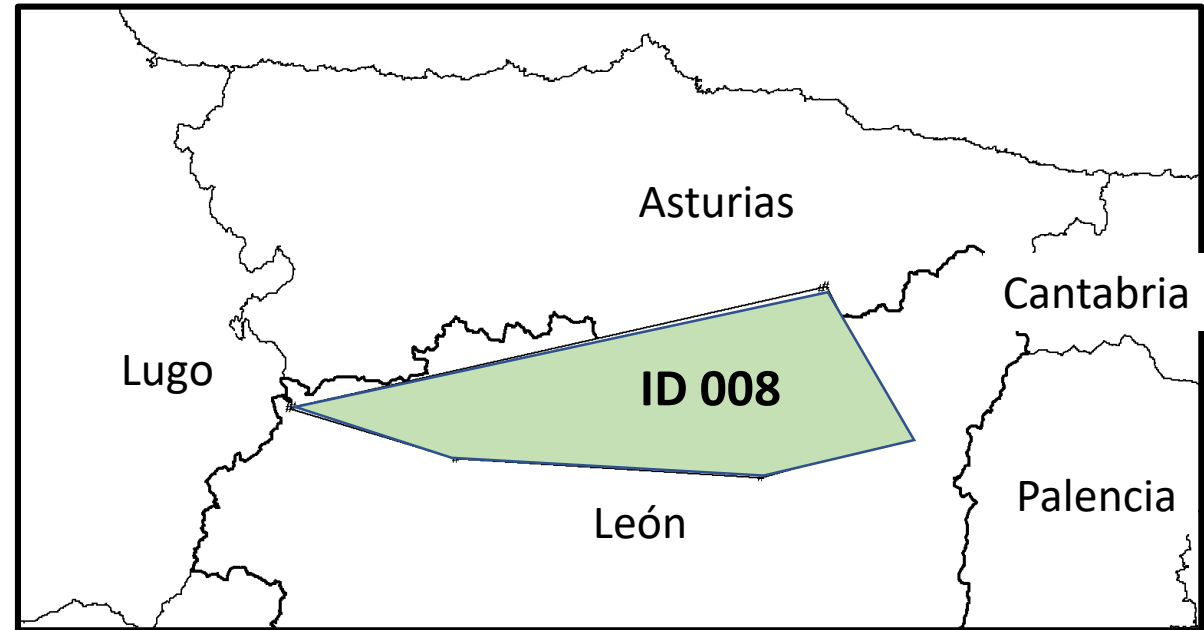


Fig. 3. Annual home range of resident adult male 88 05. Dotted line = aerial monitoring, each dot represents one weekly position, solid line = total monitoring.



**ID 008 ~3.500 km<sup>2</sup>**

Björvall, A., F. Sandegren, and P. Wabakken. 1990. Large home ranges and possible early sexual maturity in Scandinavian bears. *Proc. Int. Conf. on Bear Res. and Manage.* 8:237-241.

# Simulating multi-scale movement decision-making and learning in a large carnivore using agent-based modelling

[A. Zubiria-Perez, C. Bone, G. Stenhouse](#)

[Ecological Modelling 452 \(2021\) 109568](#)

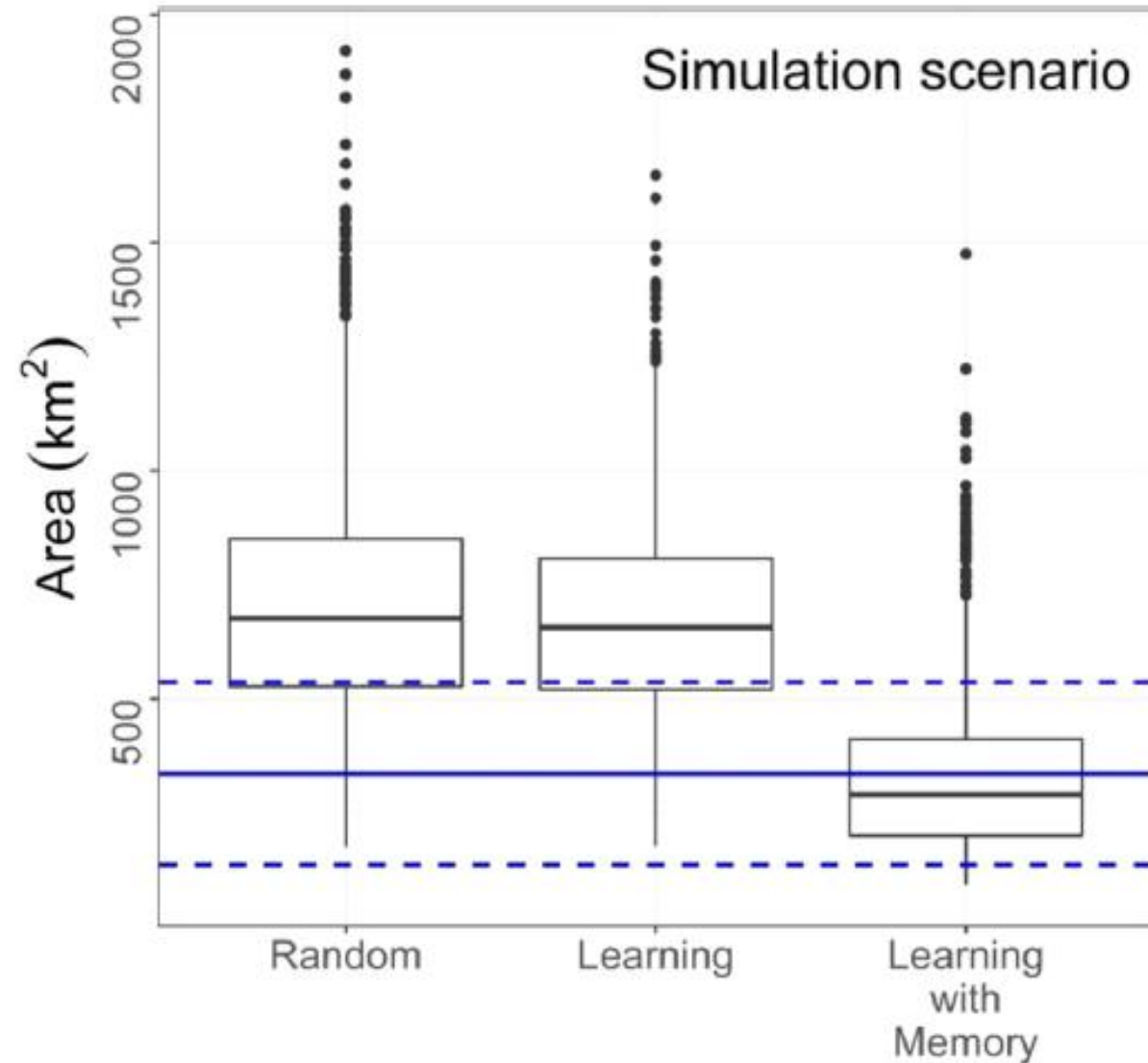


Fig. 4. Boxplot showing home range sizes for all bears in the *random* scenario and bears >7 years old in the *learning* and *learning with memory* scenarios. Blue lines show mean home range size (solid) and standard deviation (dashed) for female radio-collared bears.



# Brown bear aggregations during mating in the Cantabrian Mountains (Spain)

L. Naves-Alegre, J. Naves & A. Fernández-Gil



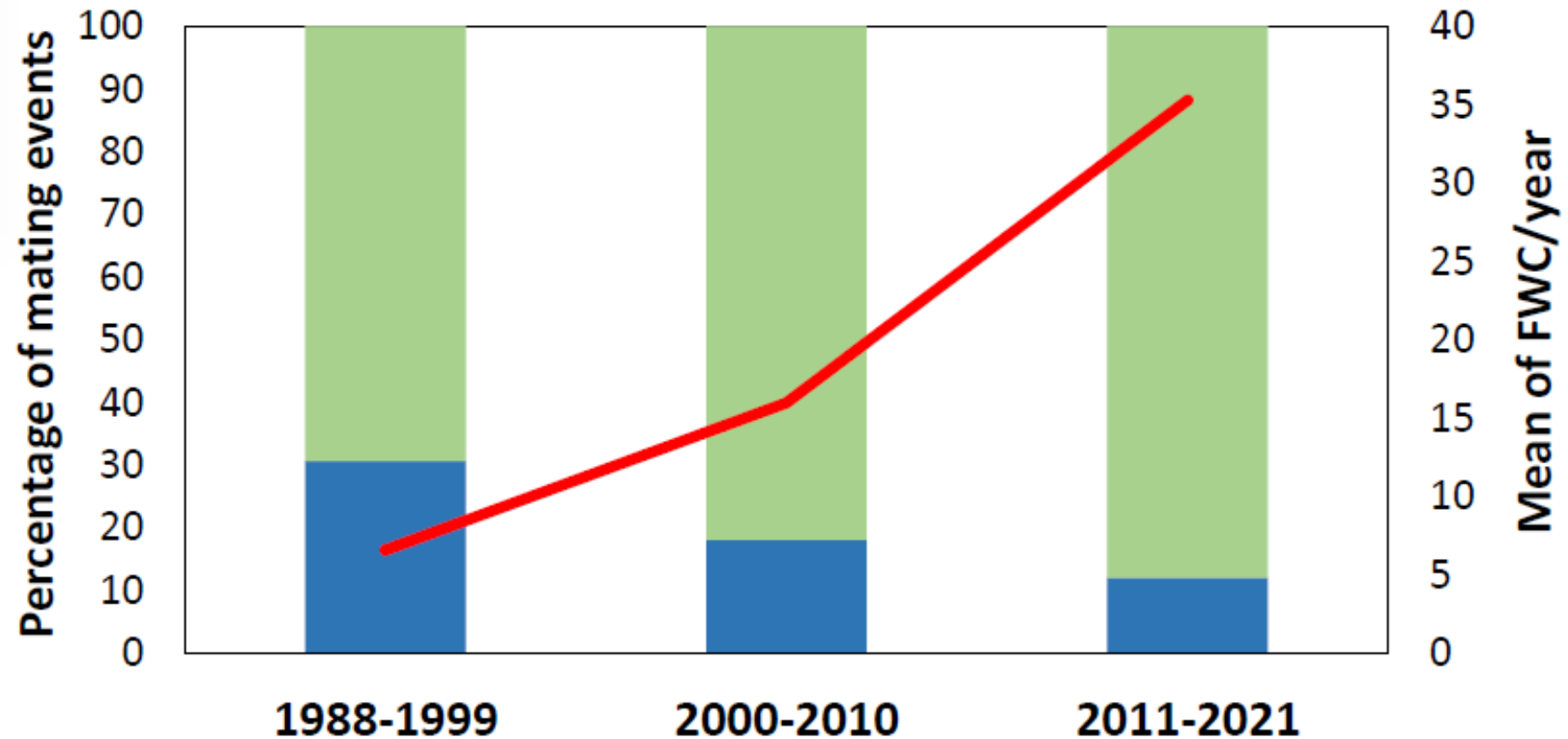
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XV Congreso



Córdoba,  
4-7 diciembre 2021



**68 mating events between 1988-2021:**  
**12 where more than two adult bears were present (18%), with a máximo of 6 bears**

- 2 bears involved in the mating event
- >2 bears involved in the mating event
- Females with cubs/year

# Brown bear aggregations during mating in the Cantabrian Mountains (Spain)

L. Naves-Alegre, J. Naves & A. Fernández-Gil



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XV Congreso  
  
Sociedad Española para la Conservación  
y Estudio de los Mamíferos  
Córdoba,  
4-7 diciembre 2021

Periodo	aliment.	desplazam.	reposo	huida	vigilancia	juego
1988-1999	30.24	48.18	4.44	12.50	1.67	0.00
2000-2010	24.65	48.91	5.41	1.72	1.94	0.00
2011-2021	37.07	33.62	5.90	0.00	4.51	0.52
<b>Total general</b>	<b>31.49</b>	<b>41.42</b>	<b>5.54</b>	<b>1.98</b>	<b>3.21</b>	<b>0.26</b>

direct **observations of adult bears** during **matting season** (without considering family groups) carried out between 1988-2021 (**n = 216**).

# ecología, comportamiento y algunas

notas sobre sus implicaciones en **conservación**

“Gestación externa”, posibilidades de abandono de crías por molestias

**Cartografía** de zonas de refugio, áreas críticas

Variedad fuentes de alimentos (frutos carnosos, secos), áreas de calidad y cantidad

**Cartografía** calidad de hábitat / potencial compleja, áreas críticas

Grandes frutos (Rosáceas, *Malus spp*, *Prunus spp.*) -> Relación competitiva / mutualista

Domesticación y cultivo -> **Conflicto**

La parte animal (proteína) de la dieta (olvidada en esta charla)

**Conflicto** (apicultura, también ganadería)

Grandes áreas de campeo, alta capacidad de navegación, aprendizaje y memoria

**Barreras** al movimiento (y asentamiento). Reincidencia y **habituación**

Cambios de comportamiento a lo largo de la vida del animal (maduración cognitiva) y también con los cambios demográficos población

Socialización intraespecífica *versus* interespecífica (humanos) -> **tolerancia**

# ¡Gracias por vuestra atención!

Javier Naves

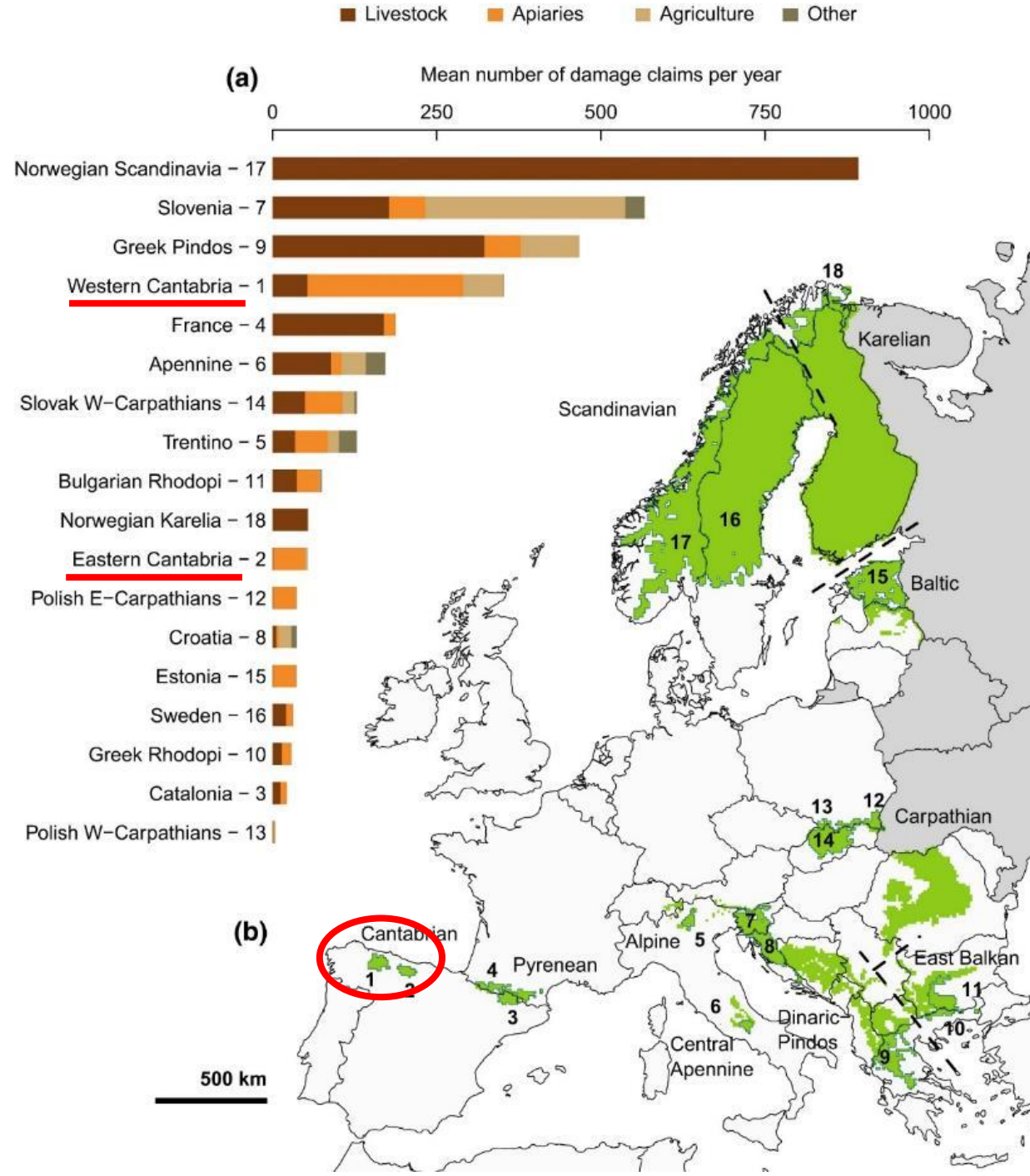
[jnaves@ebd.csic.es](mailto:jnaves@ebd.csic.es)





## Patterns and correlates of claims for brown bear damage on a continental scale

Carlos Bautista<sup>1\*</sup>, Javier Naves<sup>2</sup>, Eloy Revilla<sup>2</sup>, Néstor Fernández<sup>2,3</sup>, Jörg Albrecht<sup>1</sup>, Anne K. Scharf<sup>4</sup>, Robin Rigg<sup>5</sup>, Alexandros A. Karamanlidis<sup>6</sup>, Klemen Jerina<sup>7</sup>, Djuro Huber<sup>8</sup>, Santiago Palazón<sup>9</sup>, Raido Kont<sup>10</sup>, Paolo Ciucci<sup>11</sup>, Claudio Groff<sup>12</sup>, Aleksandar Dutsov<sup>13</sup>, Juan Seijas<sup>14</sup>, Pierre-Ives Quenette<sup>15</sup>, Agnieszka Olszańska<sup>1</sup>, Maryna Shkvyria<sup>16</sup>, Michal Adamec<sup>17</sup>, Janis Ozolins<sup>18</sup>, Marko Jonozovic<sup>19</sup> and Nuria Selva<sup>1</sup>



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(between 2005 and 2012)

Management units	Damage ratio (mean ± SD)		
	Livestock	Apiaries	Agriculture
Western Cantabria	0.26 ± 0.045	1.2 ± 0.37	0.30 ± 0.15
Eastern Cantabria	0.070 ± 0.043	2.6 ± 1.1	0.16 ± 0.082
Catalonia*	0.47 ± 0.23	0.40 ± 0.31	0
France	6.8 ± 1.8	0.72 ± 0.42	0
Trentino*	1.2 ± 0.38	1.7 ± 0.96	0.57 ± 0.23
Apennine	1.8 ± 0.62	0.31 ± 0.27	0.73 ± 0.43
Slovenia	0.39 ± 0.098	0.12 ± 0.053	0.68 ± 0.28
Greek Pindos	0.86 ± 0.10	0.15 ± 0.026	0.24 ± 0.076
Greek Rhodope	0.41 ± 0.24	0.41 ± 0.28	0
Bulgarian Rhodope	0.12 ± 0.027	0.11 ± 0.11	0.0056 ± 0.0054
Polish West Carpathian	0.029 ± 0.037	0.074 ± 0.055	0
Polish East Carpathians	0.019 ± 0.024	0.58 ± 0.63	0
Slovak West Carpathian	0.062 ± 0.0093	0.072 ± 0.032	0.023 ± 0.016
Estonia	0.0015 ± 0.0024	0.042 ± 0.024	0.00075 ± 0.0013
Norwegian Scandinavia	8.5 ± 1.3	–	–
Norwegian Karelia	1.2 ± 0.63	–	–

