

What's at steak? Meat production, food security and biodiversity

Erasmus zu Ermgassen

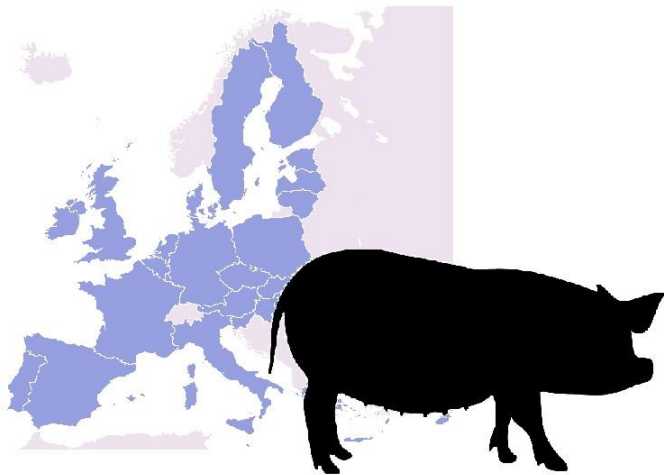
ekhiz2@cam.ac.uk

Conservation Science Group, Department of Zoology



The plan...

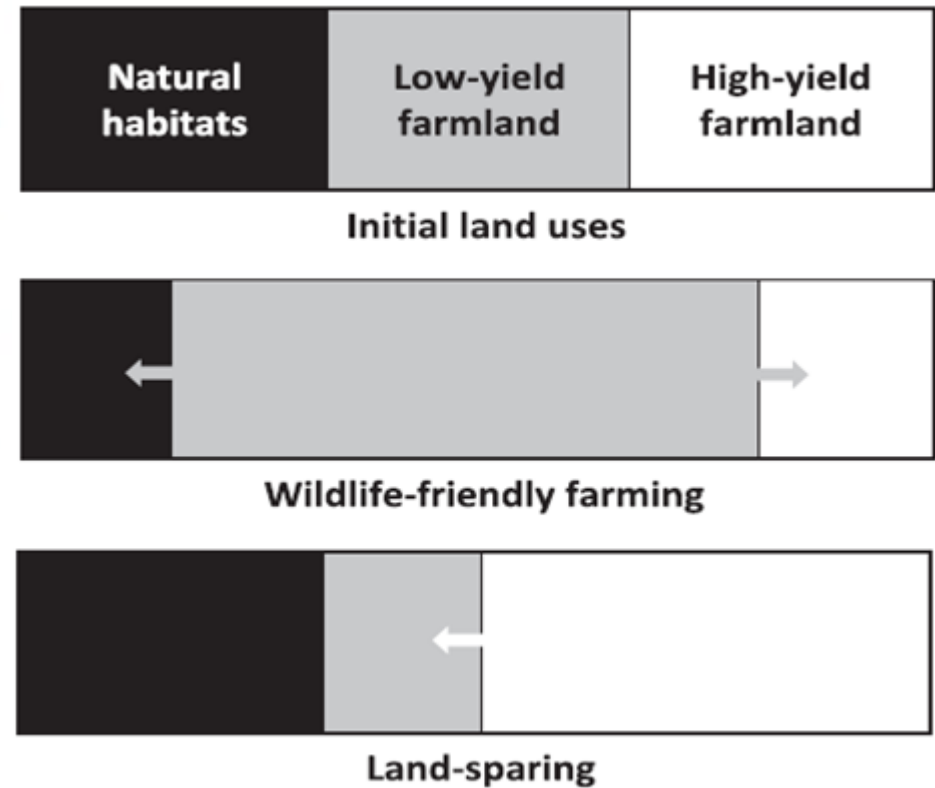
- Food Security in the Conservation Science Group
- Meat as an environmental challenge
- Two case studies and their interdisciplinary opportunities



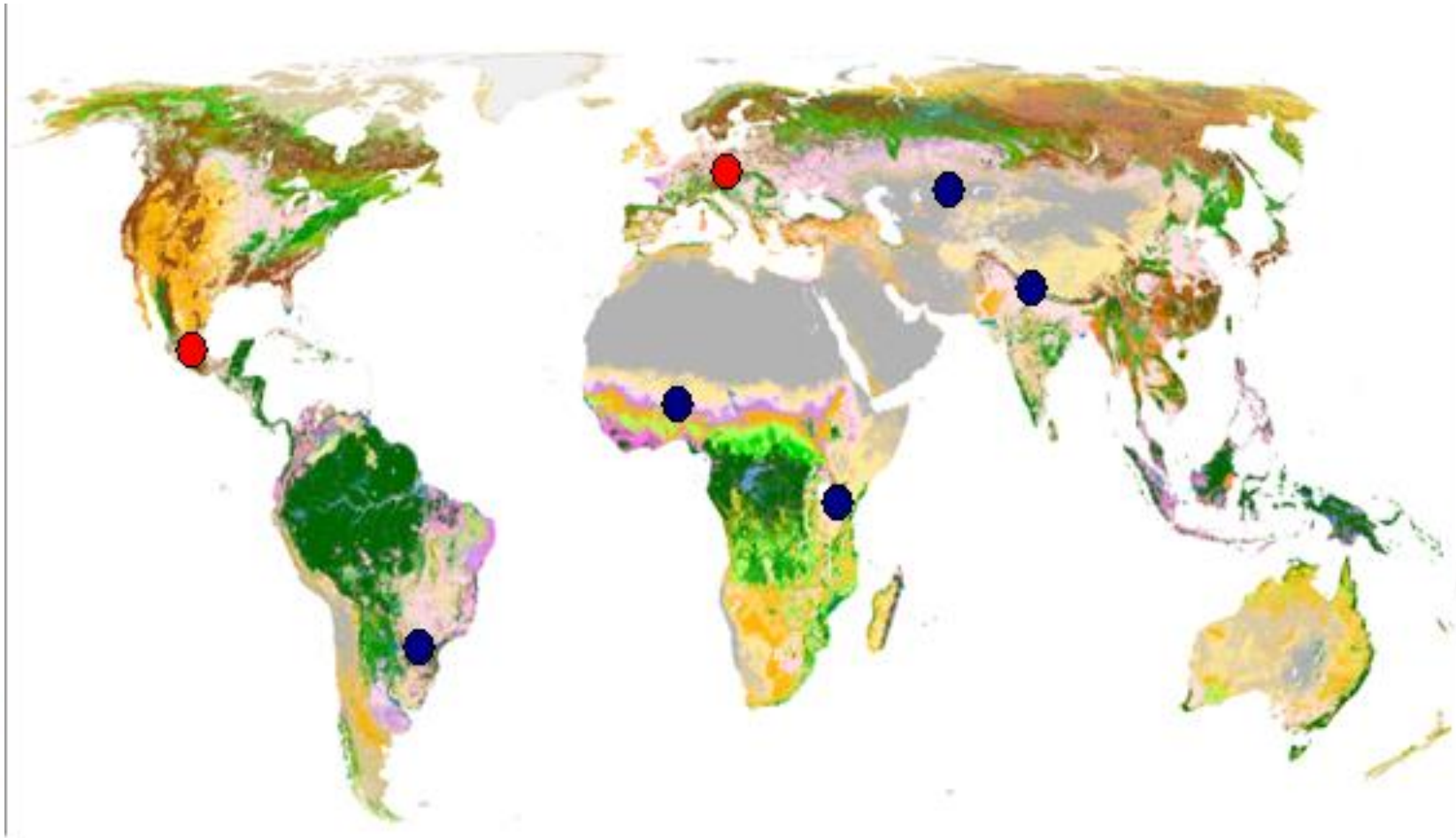
The Conservation Science Group



- Reconciling agriculture and biodiversity
- Land sparing and land sharing agriculture



The Conservation Science Group



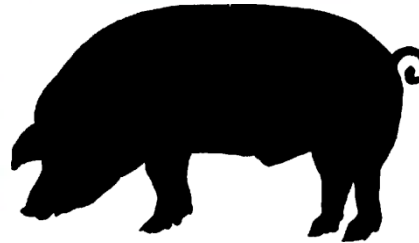
Meat as an environmental problem



19.6 billion



1.43 billion

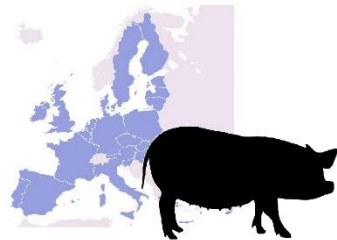


0.98 billion



1.87 billion

- Meat production occupies 75% of agricultural land
- Driver of tropical deforestation



The oldest pig feed there is...

- Food waste feeding:
 - UK: banned in 2001
 - Japan: promoted in 2001
- EU pork production:
 - 20% of the world total
 - 34 kg of pork meat/person/year
 - 10-20% of feed is soybean meal



Multi-disciplinary opportunities

- Economic impacts
- Working with industry to assess the feasibility of these approaches.



Amazonian Livestock intensification



- Farms stocked at only 32-34% of potential carrying capacity
- Only need to increase productivity to 49-52% of potential to meet demand up to 2040

Multi-disciplinary opportunities



- What are the barriers to the higher yields?
- How can we design interventions to maximise the on-farm improvements?
- What are the socio-economic impacts of increasing yields?

References:

- Phalan, B., A. Balmford, R. E. Green, and J. P. W. Scharlemann. 2011. Minimising the harm to biodiversity of producing more food globally. *Food Policy* 36, Supplement 1:S62–S71.
- Robinson, T. P., G. R. W. Wint, G. Conchedda, T. P. Van Boeckel, V. Ercoli, E. Palamara, G. Cinardi, L. D’Aietti, S. I. Hay, and M. Gilbert. 2014. Mapping the Global Distribution of Livestock. *PLoS ONE* 9:e96084.
- Strassburg, B. B. N., A. E. Latawiec, L. Barioni, C. Nobre, V. da Silva, J. Valemtime, M. Vianna, and E. D. Assad. *in press*. When enough should be enough: improving the use of current agricultural lands could meet production demands and spare natural habitats in Brazil. *Global Environmental Change*.
- <http://eatingplantsdotorg.wordpress.com/2012/05/02/whats-your-beef-grass-fed-cattle-in-texas/>; <http://www.dailyclimate.org/tdc-newsroom/2014/05/climate-brazil-beef-tax/>; <http://www.amazonrainforestnews.com/2010/01/brazilian-beef-barons-are-greenwashing.html>; http://commons.wikimedia.org/wiki/File:Map_of_EU_states_blank.png; http://commons.wikimedia.org/wiki/File:Map_of_Brazil_with_flag.svg; [http://www.clipartbest.com/pig-silhouette/](http://www.clipartbest.com/pig-silhouette;); http://www.birdclipart.com/bird_clipart_images/black_and_white_cartoon_silhouette_of_a_male_chicken_0071-1002-1400-1747.html; <http://thepigidea.org/>; <http://www.theguardian.com/environment/2013/jun/30/stephen-emmott-ten-billion>; <http://phys.org/news/2013-09-cattle-ranching-green-brazilian-amazon.html>; <http://www.treehugger.com/natural-sciences/new-cattle-pastures-far-bigger-problem-than-soy-for-amazon-deforestation.html>

Thanks:

Conservation Science Group
Department of Zoology

The logo for CRASSH, consisting of the word "CRASSH" in white, bold, sans-serif capital letters centered on a dark grey rectangular background.