

# Good Years, Bad Years and Telomeres in a Wild Bird Population



Lewis Spurgin

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# The benefits of a good start



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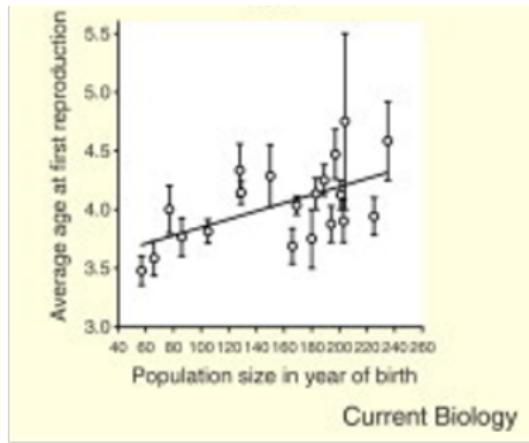
# The benefits of a good start



# A good/bad start doesn't affect everyone equally



# Silver spoons in ecology



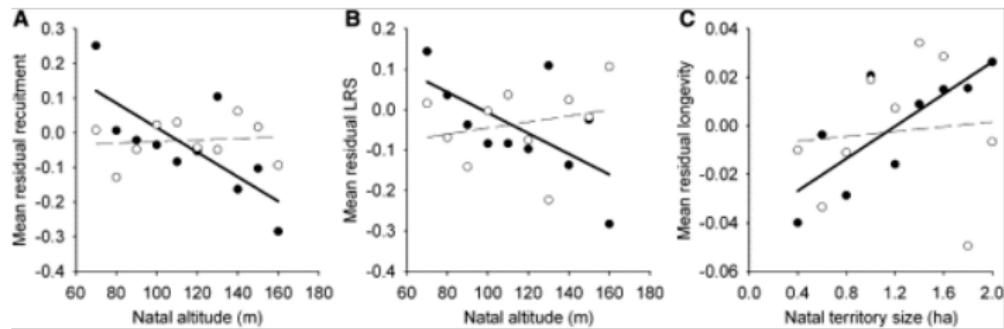
Current Biology

Nussey et al. (2007) *Curr. Biol.*

# Silver spoons in ecology



○ Males  
● Females

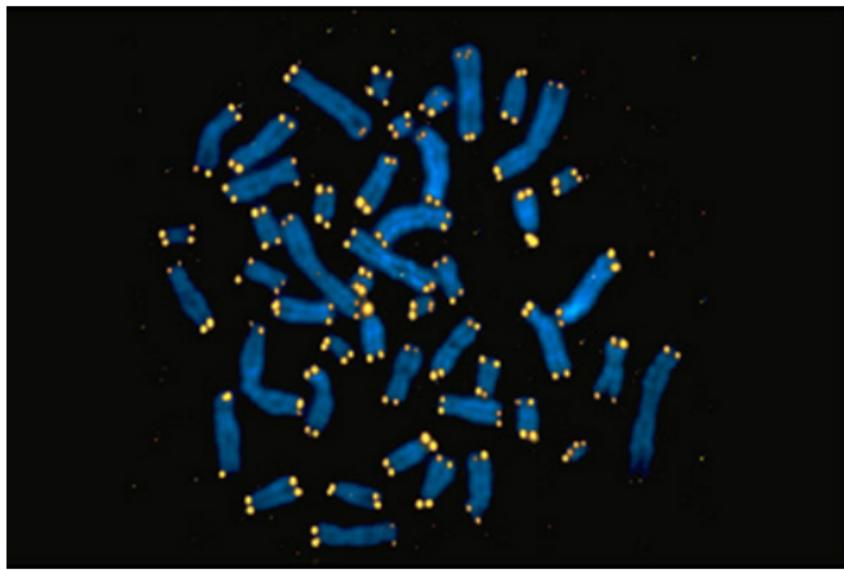


Wilkin & Sheldon (2009) *Curr. Biol.*

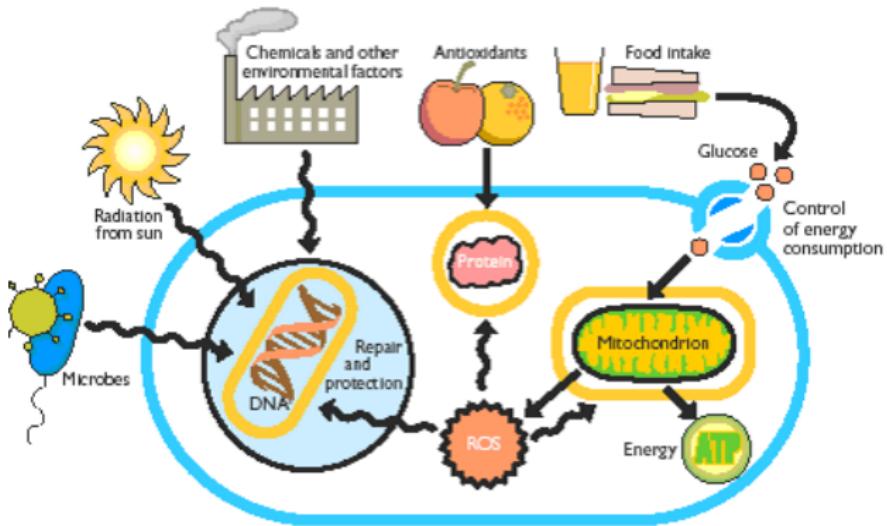
Can we quantify how badly an individual suffers from a bad start in life?



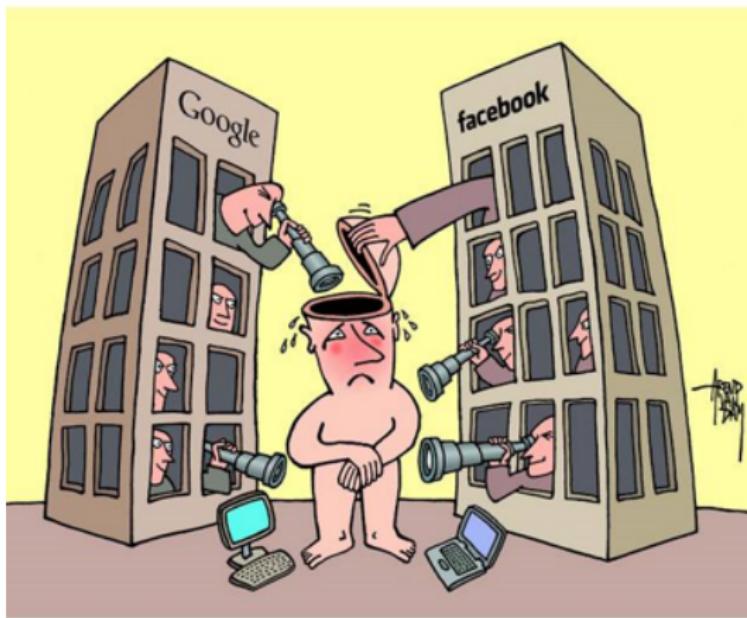
# Telomeres - $(TTAGGG)_n$



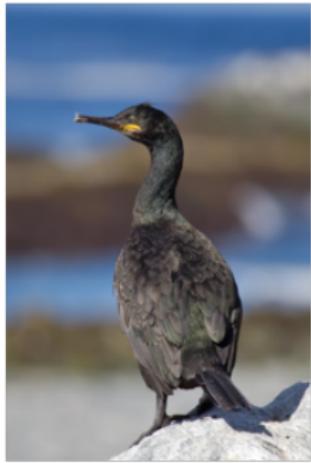
# Telomeres and oxidative stress



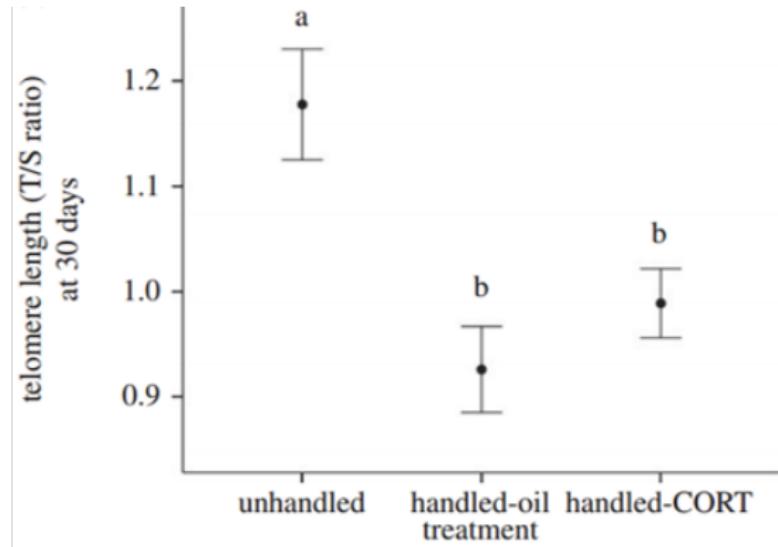
# Telomeres - biomarkers of cost



# Telomeres and silver spoons



Herborn et al. (2014) *Proc. Roy. Soc. B*



# Telomeres and silver spoons

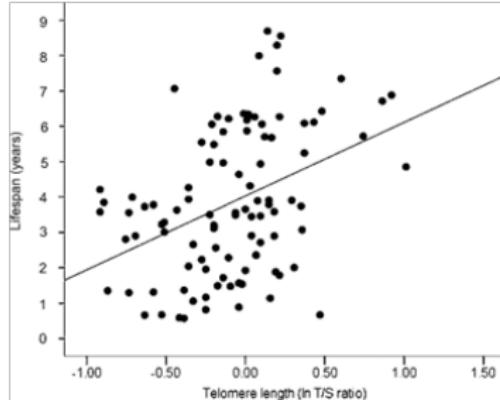
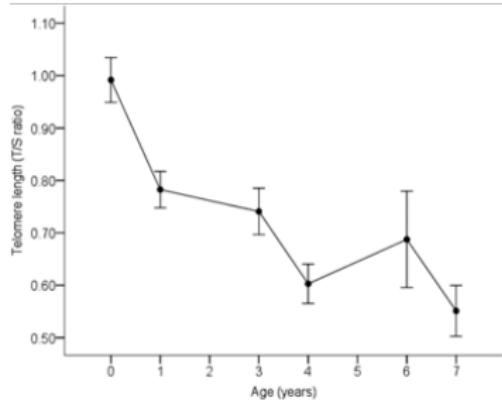


## Telomere length in early life predicts lifespan

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Edited by Cynthia Kenyon, University of California, San Francisco, CA, and approved November 29, 2011 (received for review August 15, 2011)



# Seychelles warbler (*Acrocephalus sechellensis*)



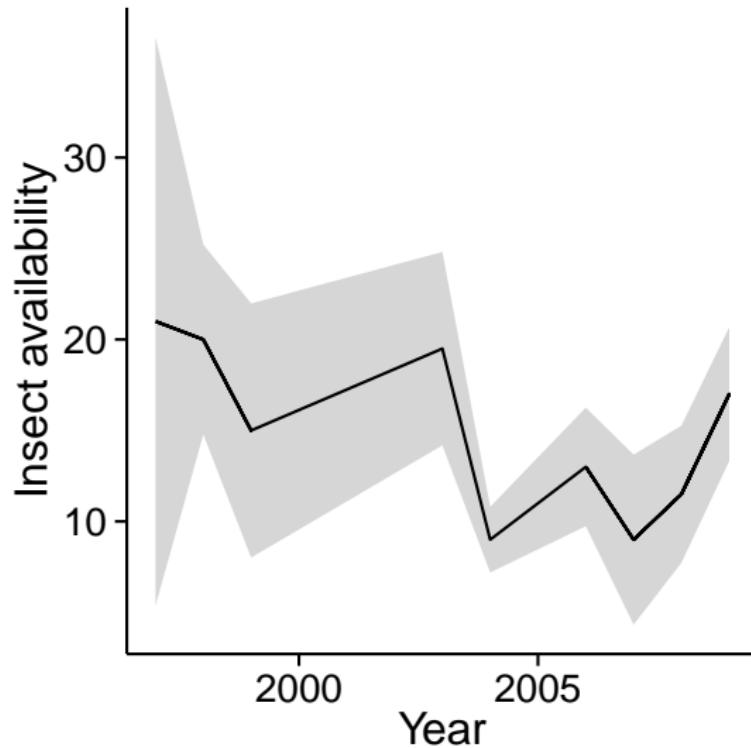
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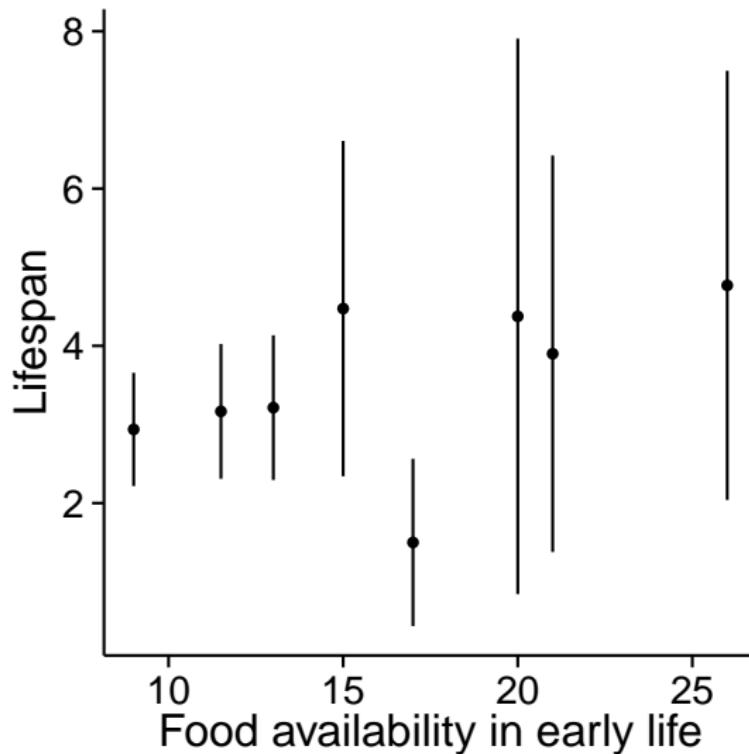
# It rains in the tropics



## Food availability varies over time



# Food availability in early life doesn't predict lifespan in the Seychelles warbler



# Predictions

## Telomeres link early life conditions to late life survival

- ▶ Juvenile telomere length varies over years
- ▶ Telomere length in early life is related to food availability
- ▶ Individuals who suffer greatest telomere shortening in early life have reduced late life survival



# Measuring warbler telomeres



Journal of Avian Biology 43: 571–576, 2012

doi: 10.1111/j.1600-048X.2012.05787.x

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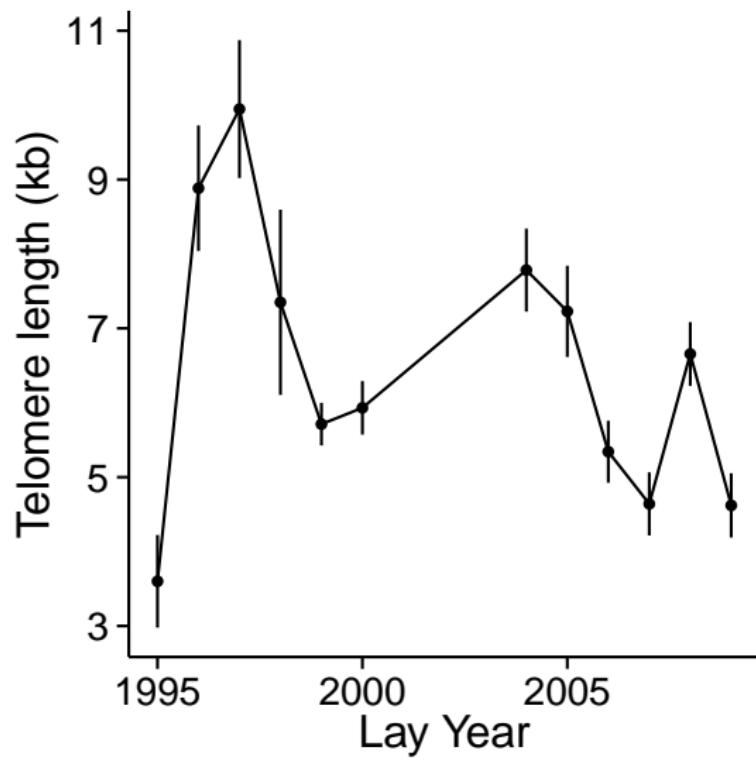
Subject Editor: Jan-Åke Nilsson. Accepted 24 August 2012

## Absolute standards as a useful addition to the avian quantitative PCR telomere assay

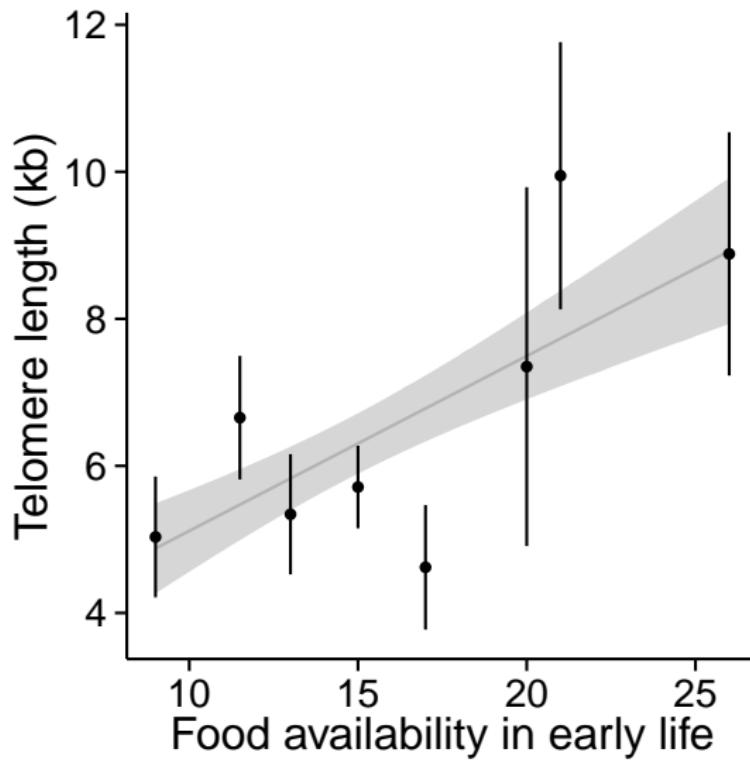
Emma L. B. Barrett, Winifred Boner, Ellis Mulder, Pat Monaghan, Simon Verhulst and David S. Richardson

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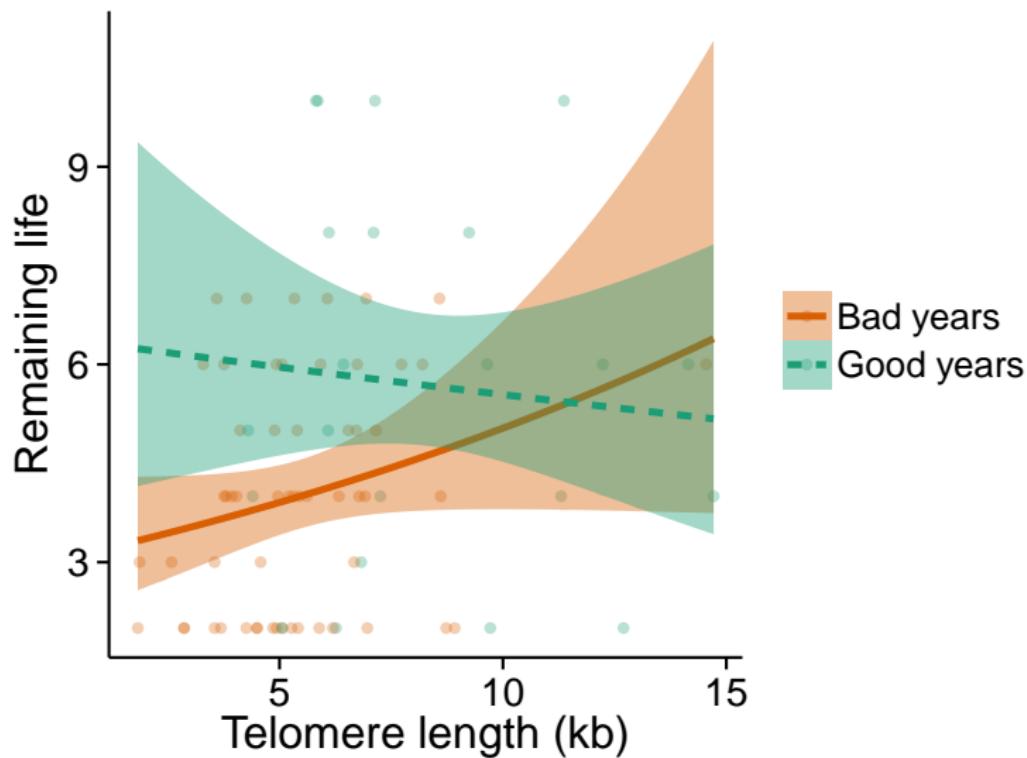
## Juvenile telomere length varies over years



# Telomere length in early life is related to food availability



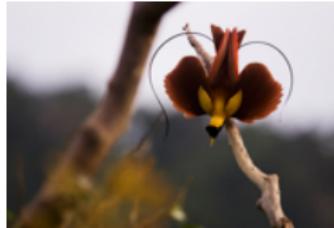
Individuals who suffer greatest telomere shortening in early life have reduced late life survival



# Predictions

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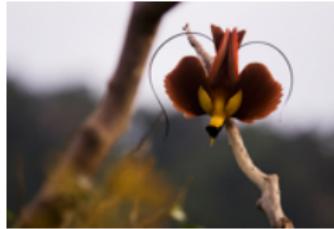
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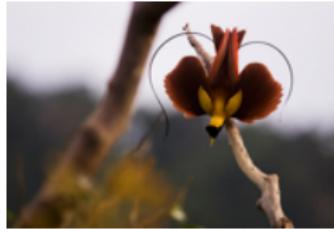
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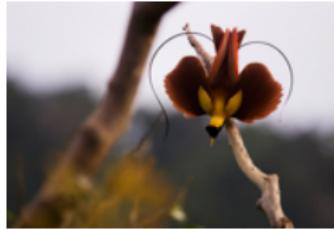
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# Thank you!

