

Nature and public health

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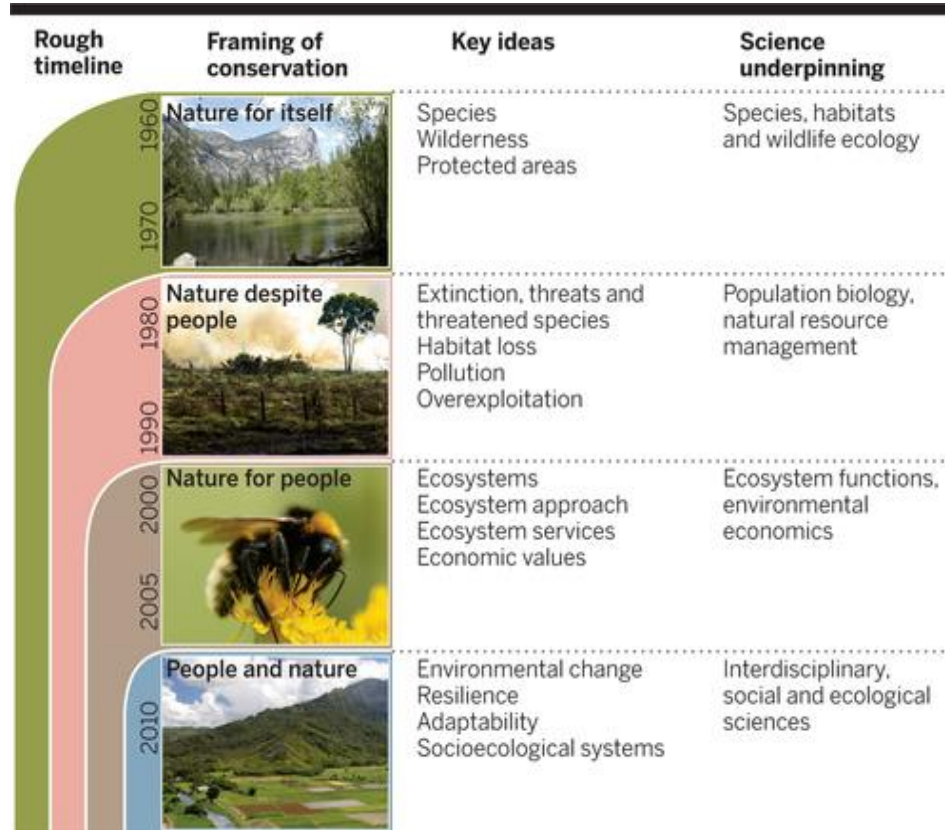
People and Nature



Neil Palmer, CIAT



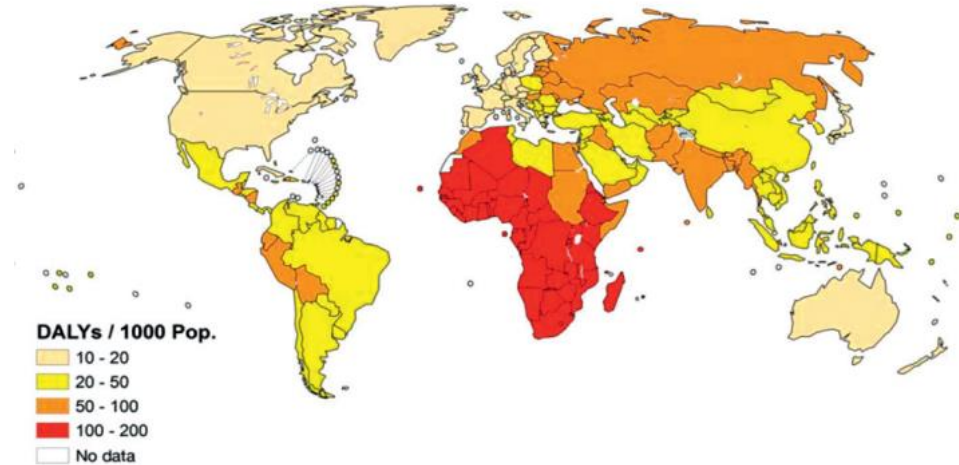
Expanding frames for conservation



Nature and human health



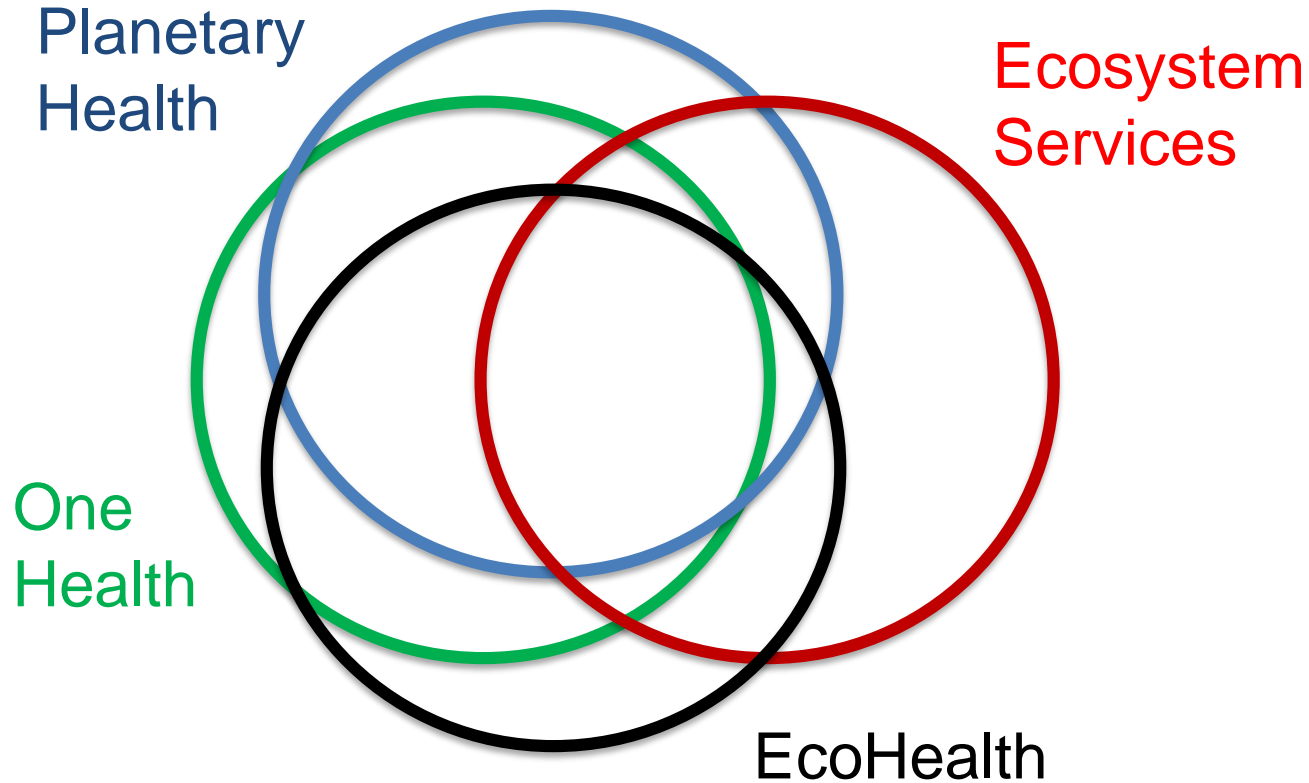
Environmental burden of disease



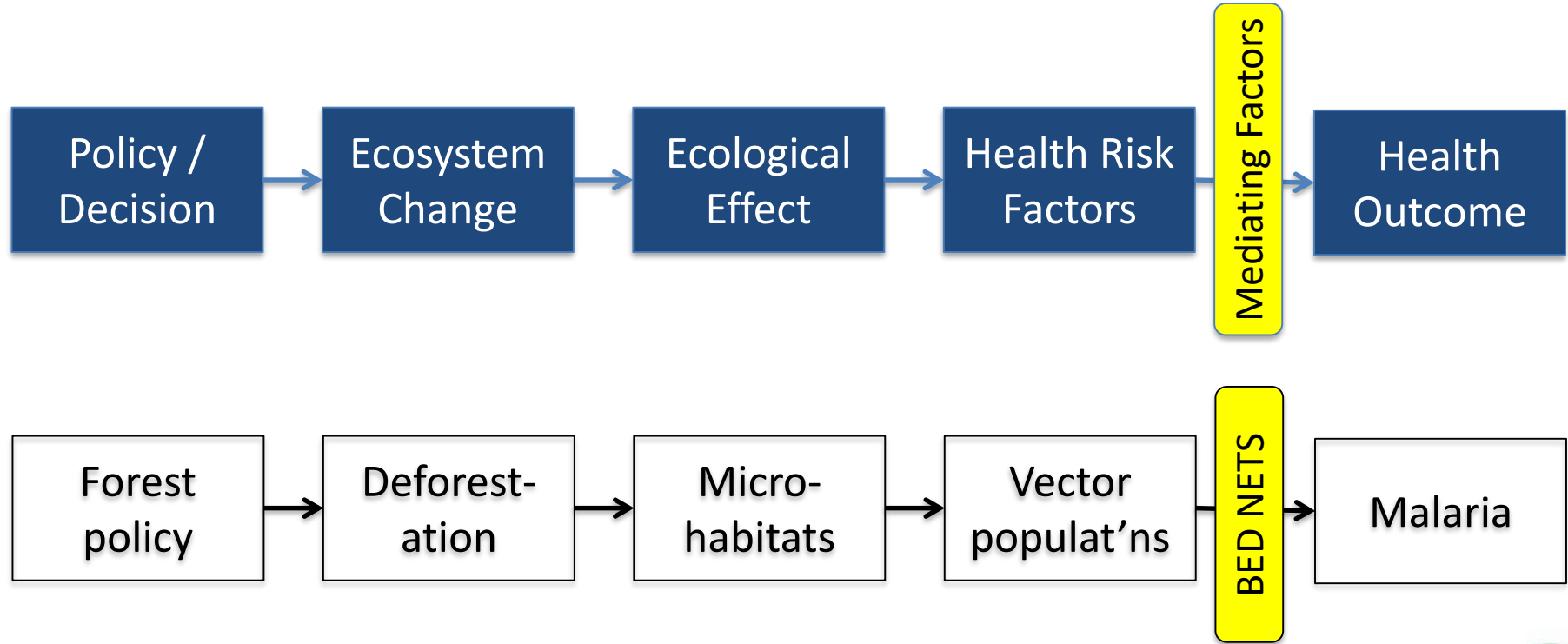
Patanayak and Pfaff. 2009. *Ann. Rev. Res. Econ.*



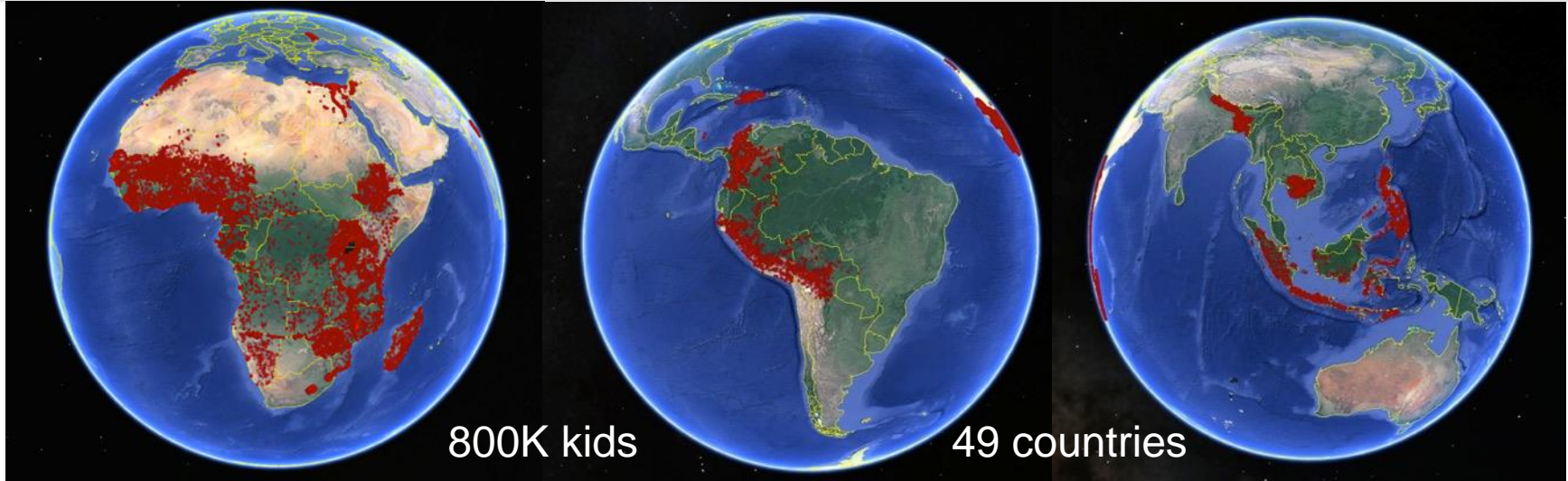
Overlapping frameworks



What we need to know



Nearby nature and children's health



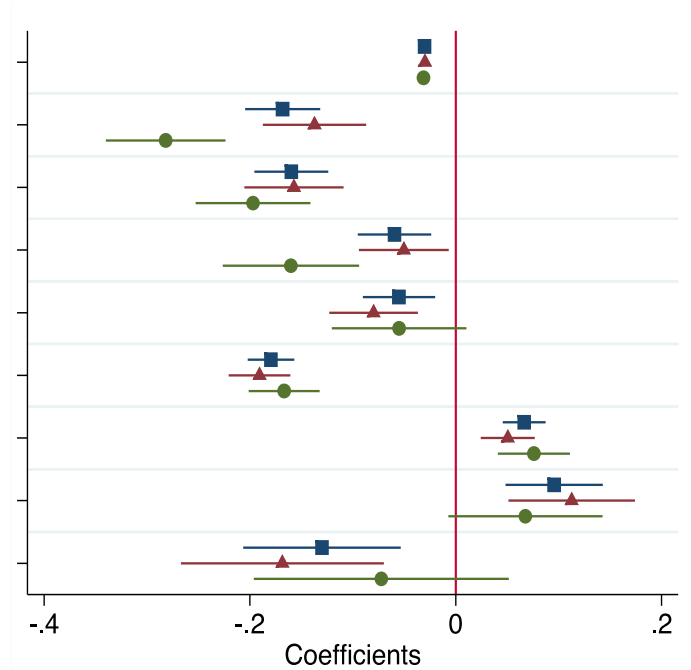
- Health outcomes (stunting, diarrhea, malaria ...)
- Social factors (wealth, education, ...)
- Household factors (water source, toilet type, ...)
- Natural features (climate, land use, parks, ...)



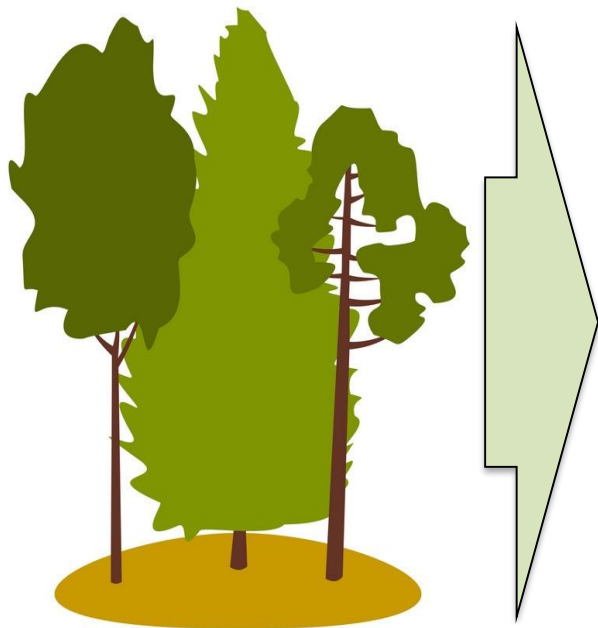
Big data, global relationships



All photos: UVM.edu/Gund



Forests help, but not for everyone



reduced diarrhea (only in rural households)

increased diet div. (more in poorer h'holds)

reduced stunting (only if parks accessible)

reduced malaria (more in poorer h'holds)

Herrera, et al. 2017. *Nature Communications*

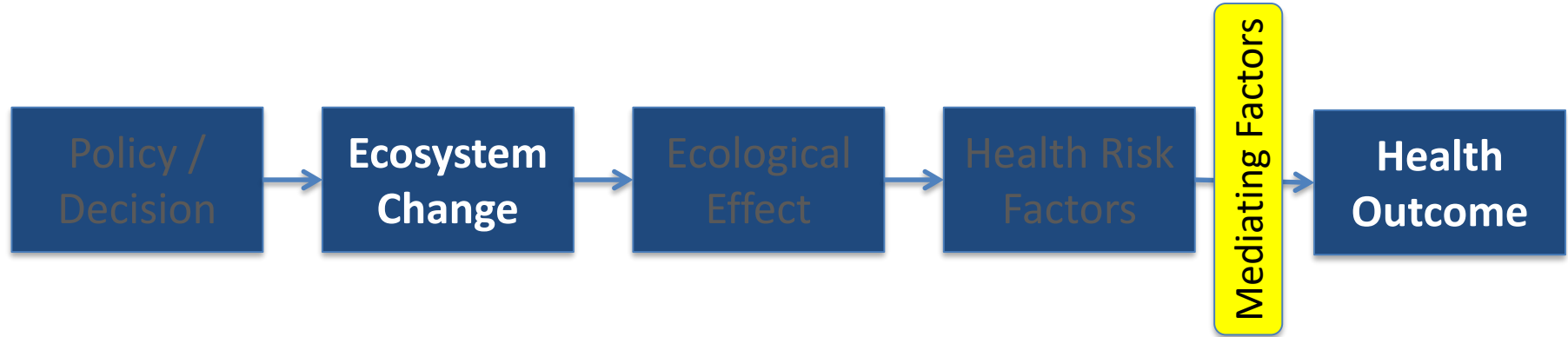
Rasolofoson, et al. 2018. *Science Advances*

Naidoo, et al. 2019. *Science Advances*

Estifanos, et al. *in review*.



Take homes – global relationships



- Forests & conservation can improve children's health
- Signal strongest for most vulnerable kids
- General enough to detect at broad scales



Nature exposure and mental health



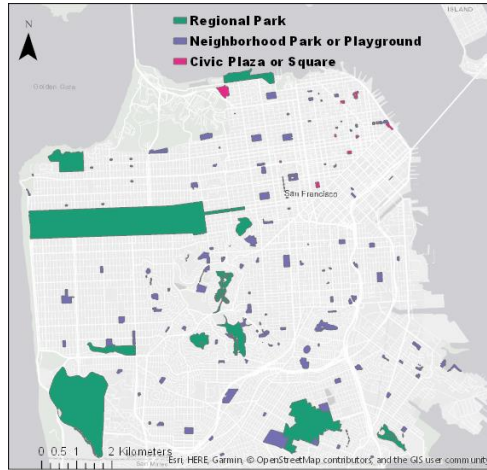
Metrotrekker.com

- Improved Mood
- Reduced Stress
- Improved Cognition

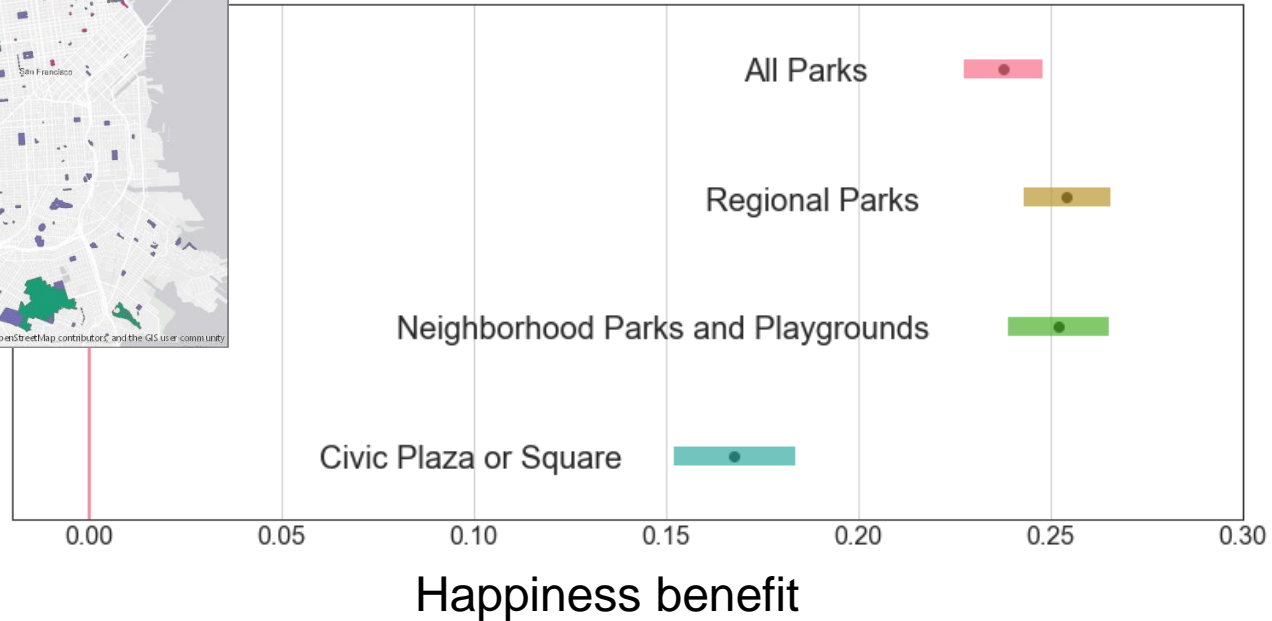
Frumkin et al., *Environmental Health Perspectives*, 2017.



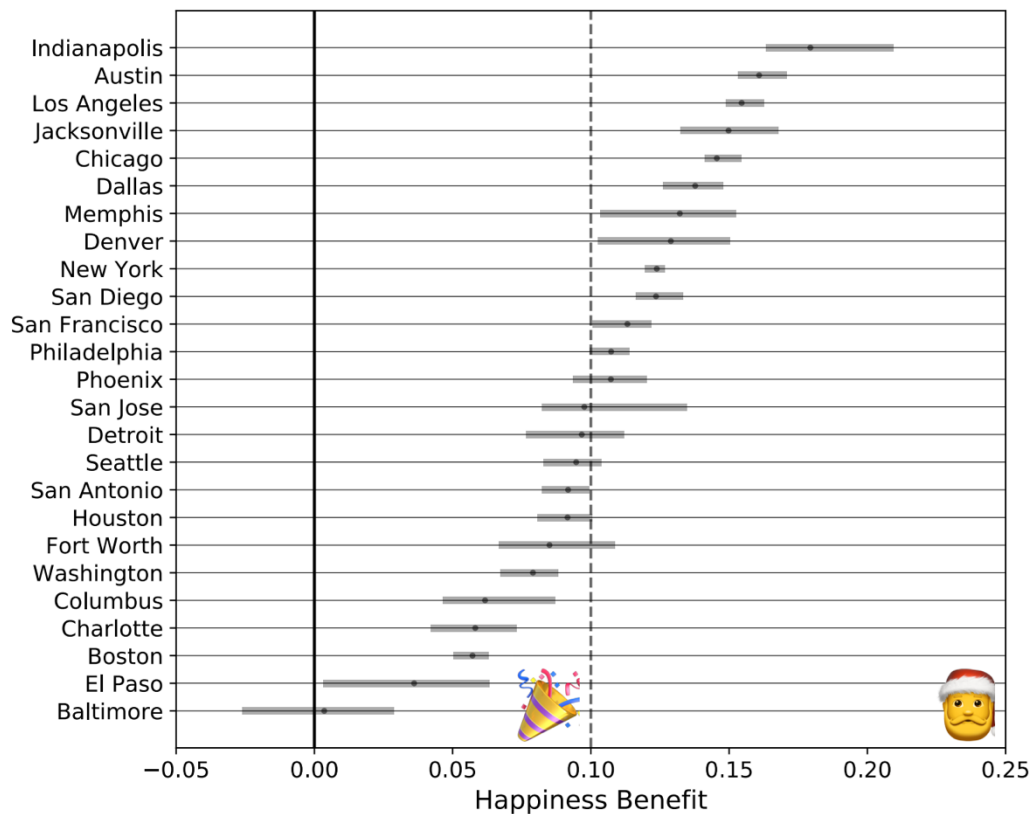
Time in urban nature improves mood



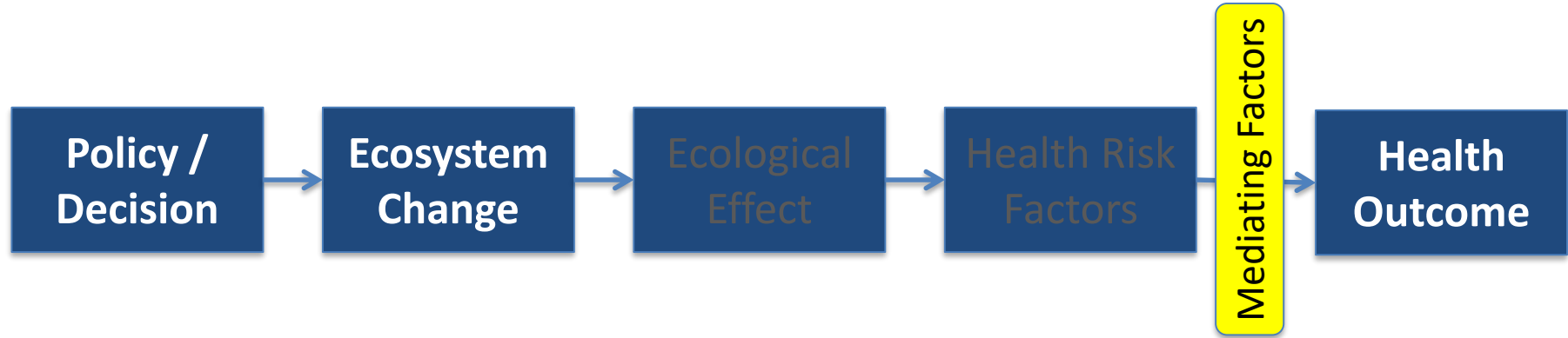
San Francisco



Effect differs among cities



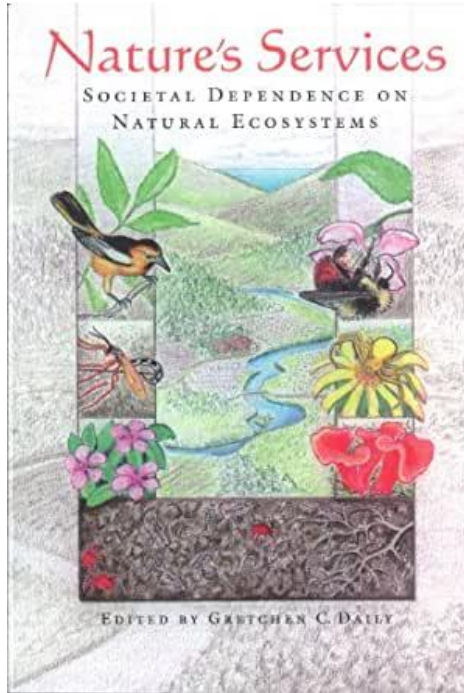
Take homes – mental health



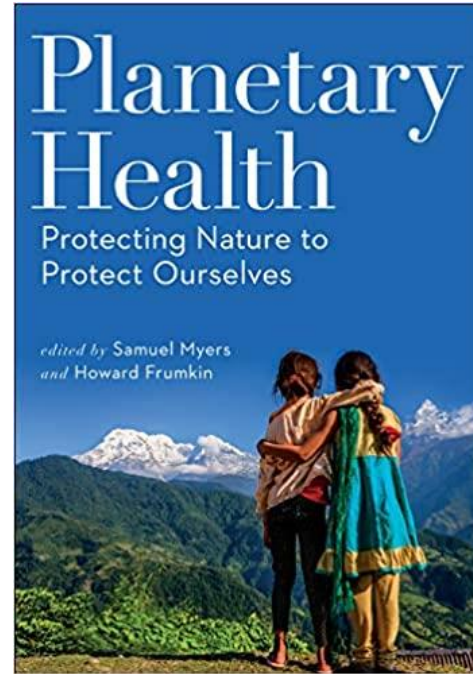
- Time in urban parks can improve mood
- Stronger effect in green parks compared to grey
- Can motivate and guide urban greenspace efforts



Targeting research for impact



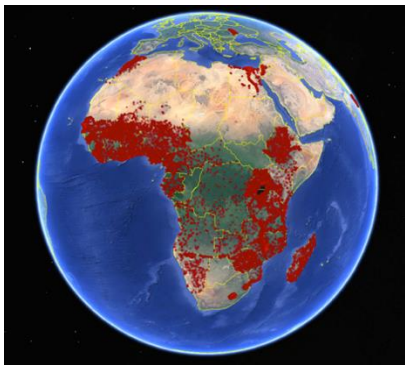
1997



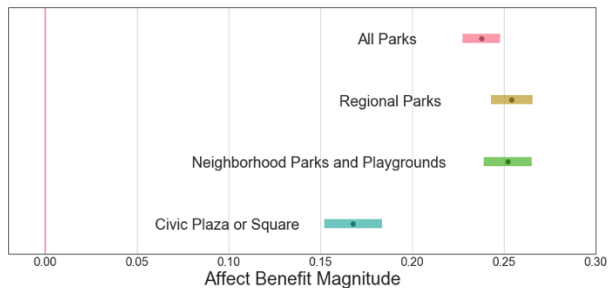
2020



1. Link broad and mechanistic studies



Kweka et al. 2016. *Frontiers in Public Health*.

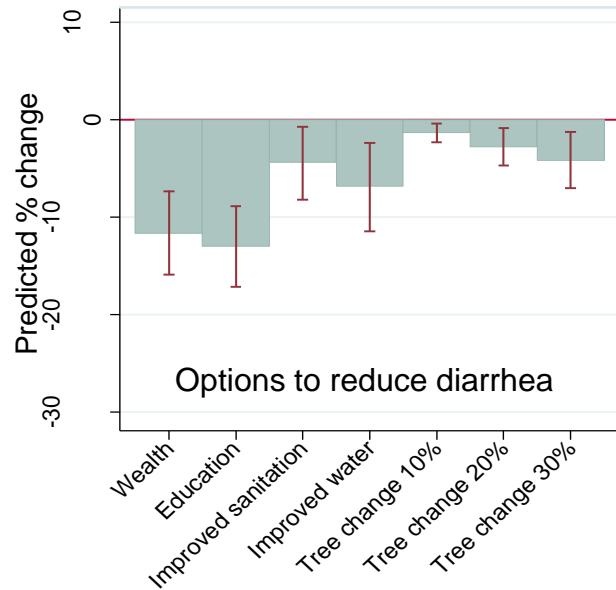


South et al. 2018. *JAMA*.



2. Provide policy context

Compare to alternatives



Herrera, et al. 2017. *Nature Communications*

Compare to costs



Every 70ha of mangrove saved 1 life

More cost effective than alternatives

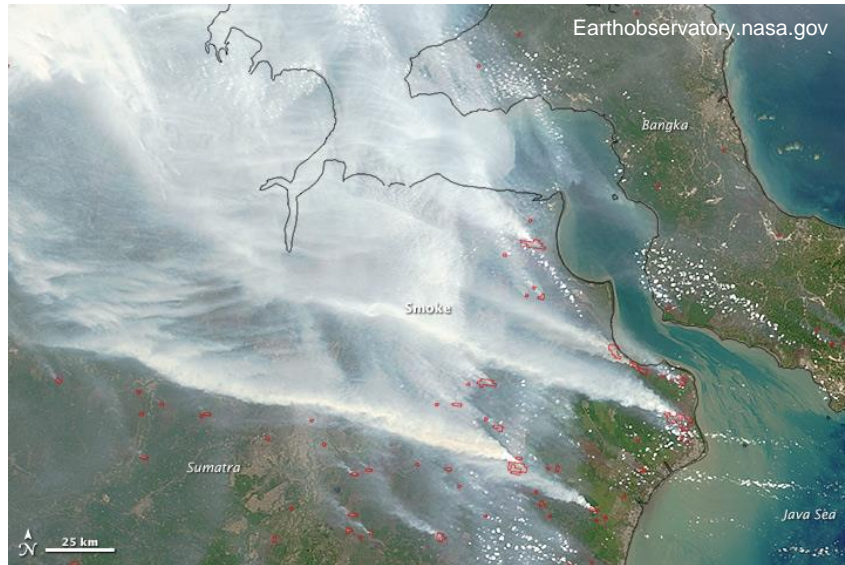
Das and Vincent. 2009. *PNAS*

Fisher, et al. 2021. *Rev. Env. Econ. & Policy*.

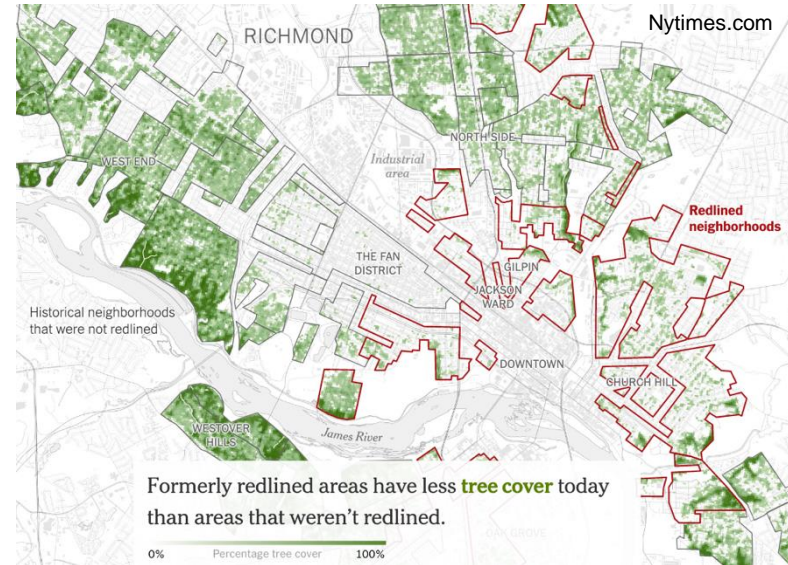


3. Focus on who benefits & suffers

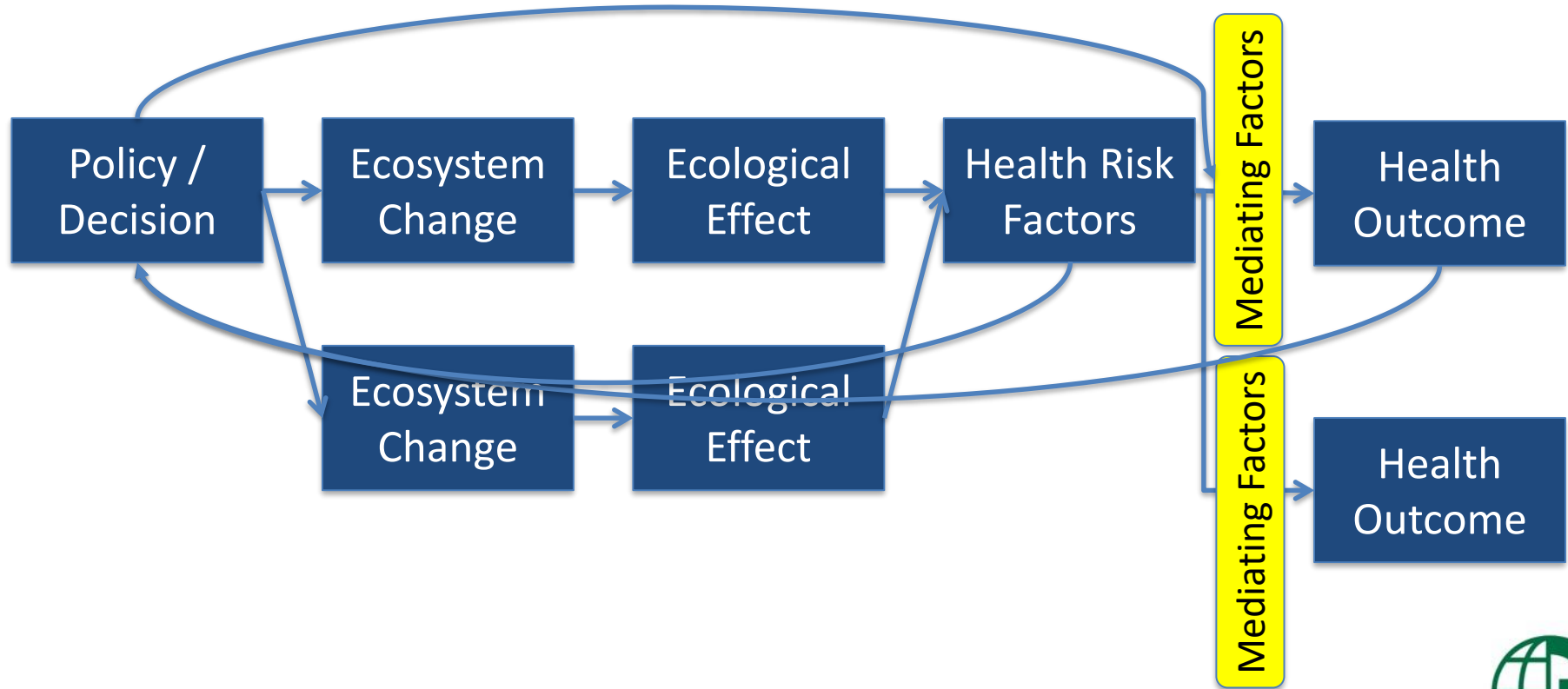
Sumatran forest fires 2015



Tree cover in Richmond, VA

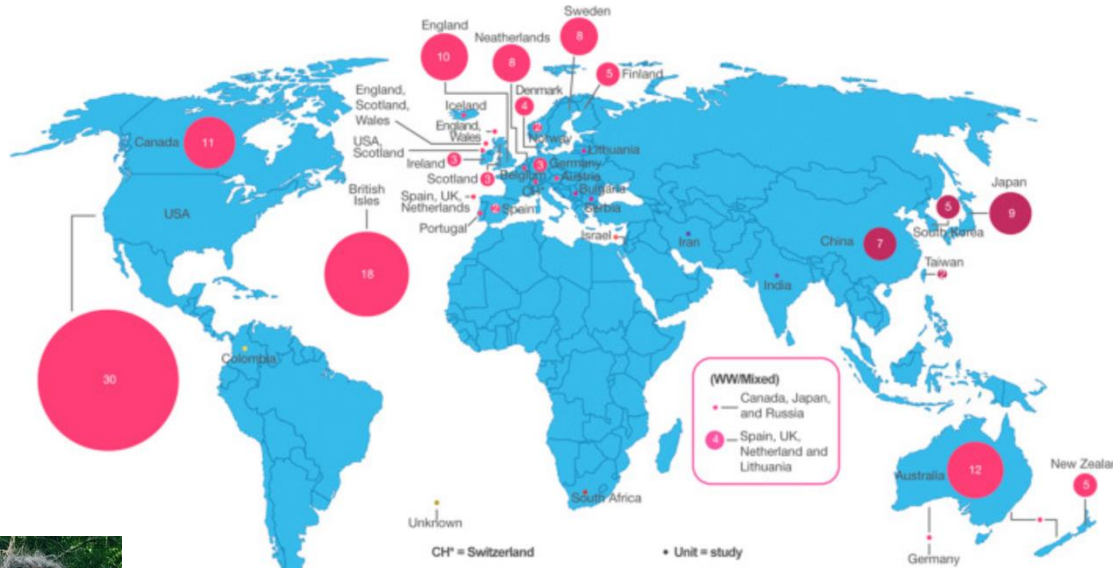


4. Consider the system



5. Represent everyone

174 Studies: Nature and mental health



- 90% in WEIRD* countries
- Overwhelmingly white participants
- 62% don't report ethnicity



Final thoughts



- Nature impacts human health in diverse ways
- Investments in nature can be public health investments
- Targeting research can increase insight, impact, equity



Collaborators

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HEAL

Gund Institute, UVM

Complex Systems Center, UVM

Planetary Health Alliance

Thanks...

@TaylorHRicketts

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WWF

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Johnson & Johnson

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