

# Rejecting Revival? Media content analysis of de-extinction

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*“...The passenger pigeon stuff is just an offensive conversation,” one biologist told me. “It’s publicity for newspaper articles.”* Excerpt from Resurrection Science by M.R. O’Connor

# One method for de-extinction

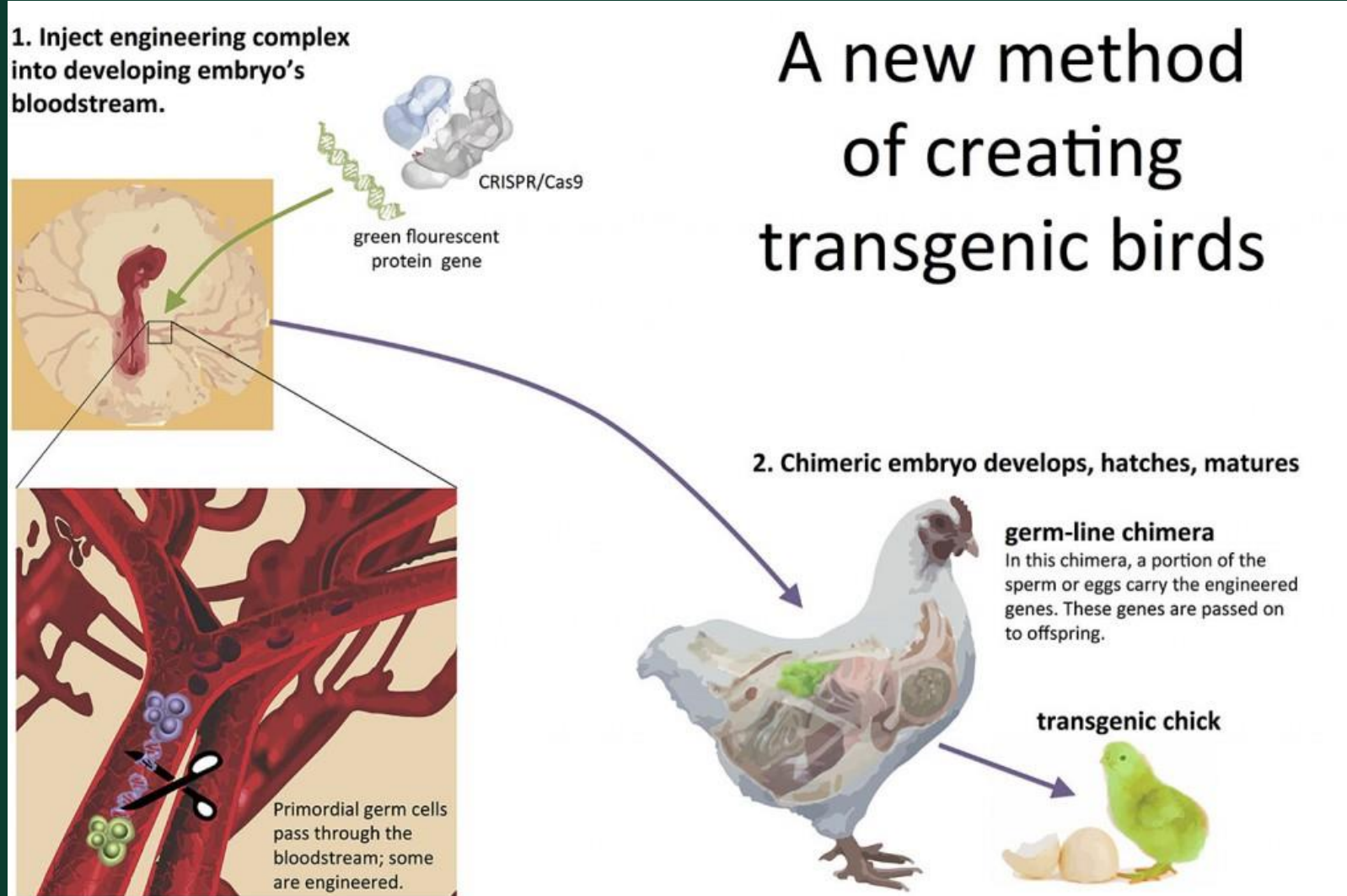


Image from [reviverestore.org](http://reviverestore.org)



Passenger pigeon from a museum



Real-life band-tailed pigeon

# De-extinction has many contexts

- Several methods- cloning, genome editing, artificial womb, back-crossing
- De-extinction candidates- woolly mammoth, passenger pigeon, gastric-brooding frog, northern white rhino



# Controversy surrounding de-extinction

- De-extinction is positive
  - Restoration of ecosystems
  - Source of inspiration
  - Fulfill moral obligation to revive extinct species



Photo by Sergey Zimov, from Beth Shapiro's,  
[How to Clone A Mammoth](#)

- De-extinctions is negative
  - Outcomes of de-extinction are unpredictable
  - Challenges current conservation efforts
  - Animal rights and suffering





# People's perception of de-extinction will impact its implementation

- Proliferation of GE has been hampered by conflict
  - Uncertainty surrounding risk, inadequate government regulation, negative media attention
- Perceptions of GE products are context dependent
  - Perceptions differ between medical & agricultural applications
  - Perceptions of GE animals are not favorable
- So how might people react to de-extinction?

# Media's role in framing GE technology

- Framing- process where certain aspects of an issue or event are communicated and thereby made more salient (Entman, 1993)
- Media framing may have contributed to GE resistance
  - Emphasize negative opinions (Owens, 2003; Sylvester et al., 2009)
  - Give more attention to critics (Nelkin, 1987)
  - Overestimating the occurrence of risks (Bauer & Gaskell, 2002)
- Science fiction references can be used elicit awe or fear (Hamilton, 2003)

# What's in a news story about the future?

- Potential impacts- News articles presenting both positive and negative impacts of de-extinction
- Perceived feasibility- Is de-extinction really going to happen? What are the likely paths to success?
- Ethics- Are moral issues included in de-extinction stories?
- Are science fiction references used to elicit emotions?

# Methods for content analysis

- Used Lexis Nexis, Newspaper Source Plus, and Newsbank databases to retrieve 172 articles about de-extinction, most between 2013-2015
- Coded content using QSRI Nvivo
  - Iteratively developed a codebook to define themes
  - Second-coder coded 22 articles to measure reliability, Cronbach's  $\alpha > .7$  for all themes
- Also recorded year of publication, country of article, animal of focus, and event trigger for article
- Type of news article: news story, op-ed, letters
  - Traditional news articles = 71% of this dataset





# Results- Country where articles were written

| Articles from: | Percent |
|----------------|---------|
| United States  | 40%     |
| United Kingdom | 22%     |
| New Zealand    | 10%     |
| Australia      | 9%      |
| Canada         | 7%      |
| All others     | 8%      |

| Others       | Percent |
|--------------|---------|
| South Africa | 2%      |
| India        | 1%      |
| South Korea  | 1%      |
| Singapore    | 1%      |
| Online pubs  | 3%      |

# Focus animal for each article

| Articles about:       | Percent |
|-----------------------|---------|
| Woolly mammoth        | 20%     |
| Passenger pigeon      | 16%     |
| Multiple species      | 14%     |
| Gastric brooding frog | 8%      |
| Moa                   | 7%      |
| Northern white rhino  | 5%      |
|                       |         |

|                |    |
|----------------|----|
| Neanderthal    | 2% |
| Dinosaurs      | 2% |
| Bucardo        | 1% |
| Other species* |    |
|                |    |

\*Other species, each the focus of 1 article- Great auk, Asiatic cheetah, Quagga, Thylacine, black rhino, Morro bay kangaroo rat, Bighorn sheep, ancient horse

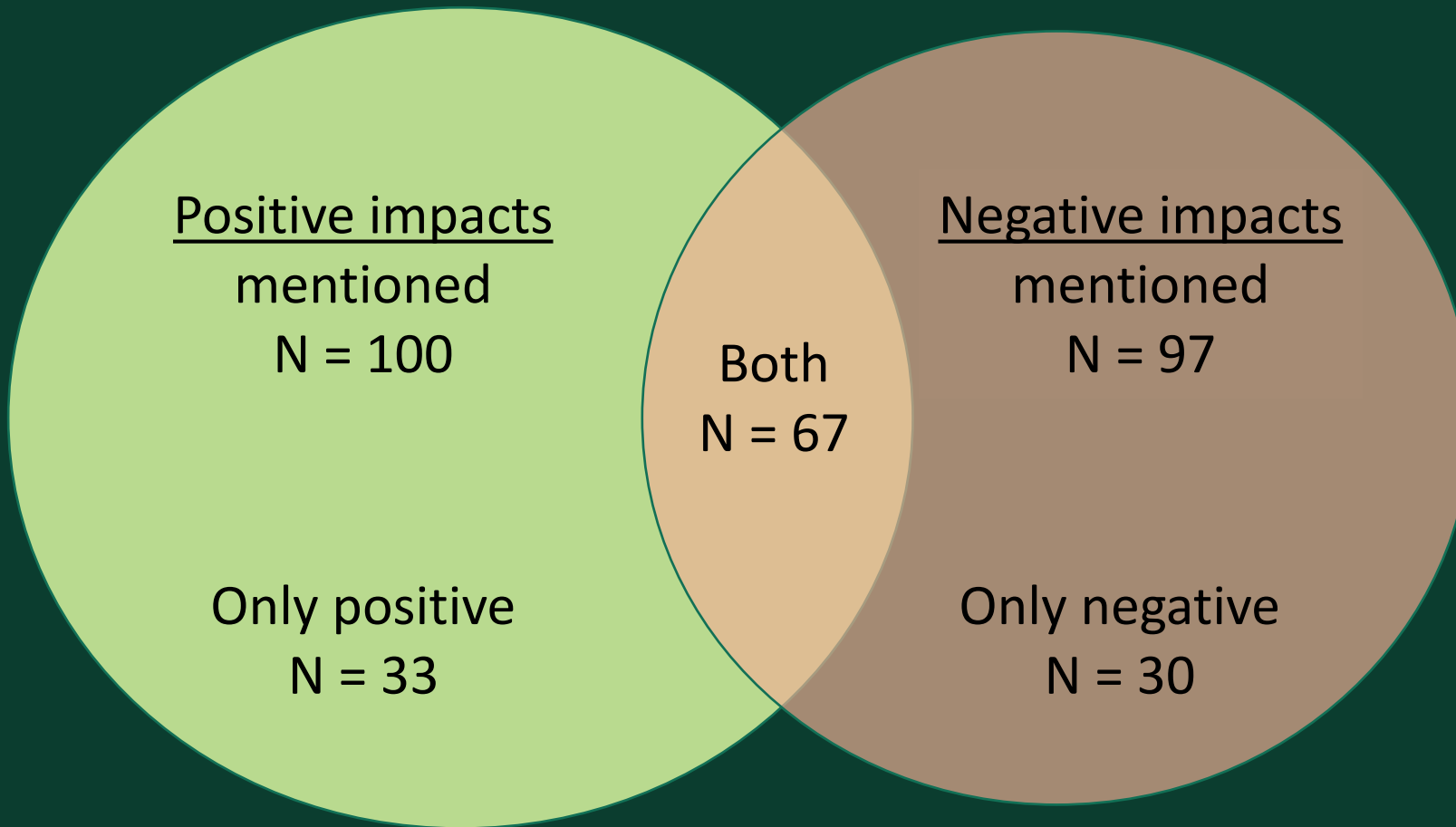
# Presence of themes in articles

| THEMES                    | Percent | THEMES                        | Percent |
|---------------------------|---------|-------------------------------|---------|
| <b><u>Impacts</u></b>     |         | <b><u>Ethics</u></b>          |         |
| Positive                  | 58%     | General concerns              | 38%     |
| Negative                  | 56%     | Animal suffering              | 9%      |
| <b><u>Feasibility</u></b> |         | Disagreement                  | 14%     |
| Inevitable success        | 46%     | Obligations of ownership      | 14%     |
| Inevitable failure        | 10%     | Obligation to revive          | 16%     |
| Regulation questions      | 9%      | <b><u>Science fiction</u></b> |         |
| High cost                 | 10%     | General reference             | 11%     |
| Data needs                | 7%      | Jurassic Park                 | 44%     |
| Authenticity              | 20%     | Frankenstein                  | 3%      |
|                           |         | The Fly                       | 1%      |

# De-extinction might be good and/or bad

- Positive 58% (n=100)
  - Most often mentioned benefit is ecological, 37% (n = 64)
- Negative 56% (n=97)
  - Threatens current conservation efforts
    - *“For years [conservationists] have argued that ‘extinction is forever’ but if governments and corporations believe that it’s not, then this could fatally undermine efforts to preserve and protect what we have”*
  - De-extinct animals will not be compatible with current ecosystems
    - *“If there is no place for these creatures anymore, if we’ve altered the world so profoundly that there is no place for them, maybe this would be the ultimate act of ignorance.”*

# How many articles mention positive and negative impacts?



Neither positive or negative impacts mentioned, N = 42

# Why might articles slant negatively?

| Variable                      | Number of articles | Articles that mention <u>negative impacts</u> | Articles that ONLY mention <u>negative impacts</u> |
|-------------------------------|--------------------|---|--|
| <b>ALL ARTICLES</b>           | <b>172</b>         | <b>56%</b>                                    | <b>17%</b>   |
| <b><u>Type of article</u></b> |                    |   |  |
| Traditional news article      | 122                | 53%   | 16%  |
| Opinion, Op-Ed                | 20                 | 74%   | 26%  |
| <b><u>Animal of focus</u></b> |                    |   |  |
| Woolly mammoth                | 34                 | 62%   | 18%  |
| Passenger pigeon              | 27                 | 63%   | 33%  |
| Northern white rhino          | 8                  | 63%   | 13%  |



# Why go negative con't

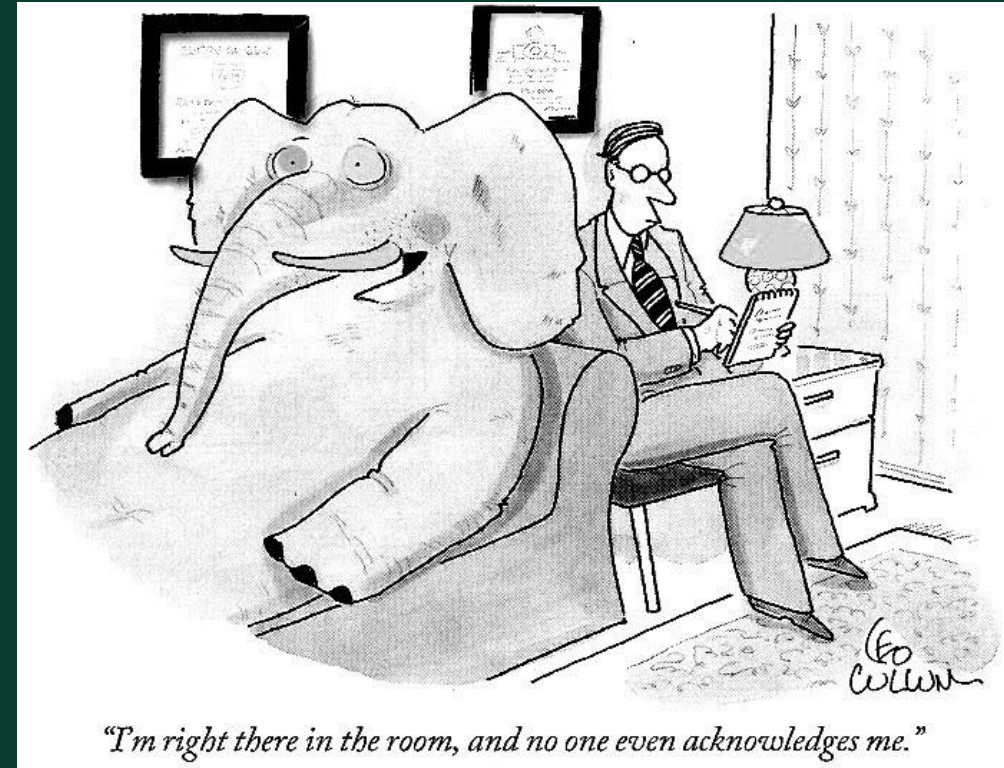
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| <b><u>Country of article</u></b> |                    |   |  |
| United States                    | 68                 | 65%   | 24%  |
| United Kingdom                   | 37                 | 51%   | 8%   |
| New Zealand                      | 17                 | 47%   | 25%  |
| Australia                        | 16                 | 50%   | 13%  |
| Canada                           | 12                 | 42%   | 25%  |

# The future is set, to some extent

- De-extinction will surely be successful, many articles framed de-extinction as inevitable 48% (n= 82)
  - *“One of the few times I saw him laugh was when I asked whether de-extinction might turn out to be impossible.”*
  - Fewer framed it as an inevitable failure 10% (n=17)
- What makes a good candidate?
  - *“...the passenger pigeon should be especially well suited to survive in new habitats, because it had no specific native habitat to begin with. It was an opportunistic eater, devouring a wide range of nuts and acorns and flying wherever there was food.”*
  - *"Much of their breeding and wintering habitat is gone," says [biologist] of the conservation group Ducks Unlimited, and the animal's primary breeding-season food - beech mast, the nuts of a beech tree - is limited.*

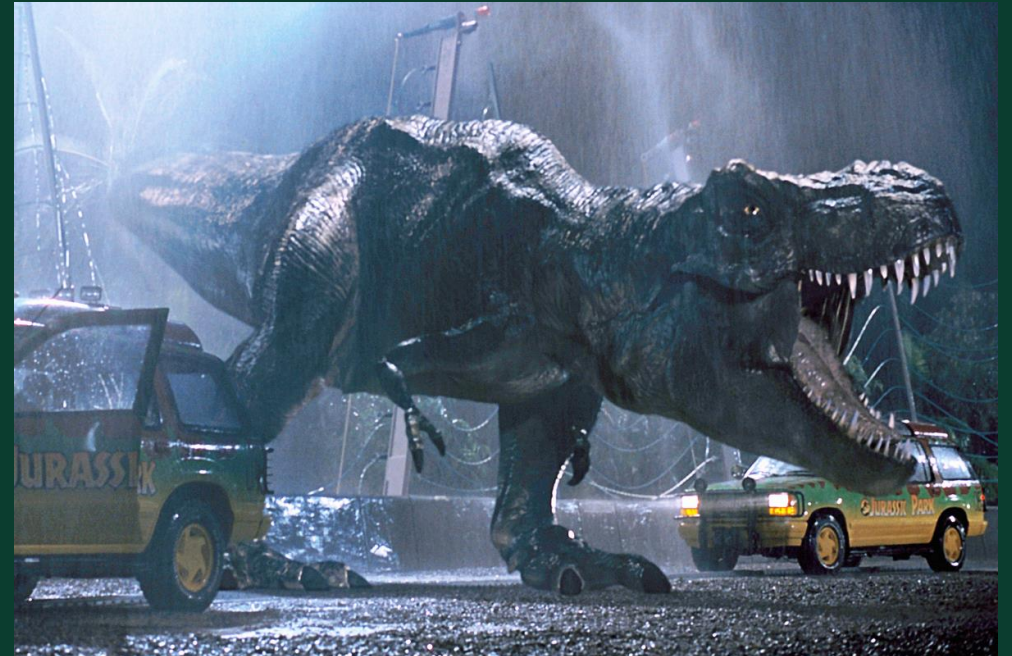
# Avoiding tough issues

- Ethics were often mentioned, but not often explored, 39% (n=67)
  - *“It seems we have the technology to achieve it, but the argument surrounds the ethics of what the experts call de-extinction.”*
- The belief that we have a moral obligation to revive extinct species was uncommon 17% (n= 29)
- The belief that de-extinction is morally wrong was similarly uncommon 14% (n=24)



# Pleistocene Park?

- Jurassic Park is mentioned in 45% of articles (n=77), and communicates information or risk
  - *“De-extinction, or the idea of brining species back from the dead, has come a long way over the quarter century since Jurassic Park was first published.”*
  - *“Plus it all sounds a bit like Jurassic Park...and that movie didn’t end well.”*



# Next step- Complicating the associations

- Who is framing the de-extinction narratives?
- What types of positive and negative impacts are be discussed?
- Which themes are commonly mentioned together?



# Thank you

- NSF IGERT Award # 1068676

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