

# Virtual Meeting: US Culture Collection Network



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# Status of USCCN

## **BUDGET:**

- ▶ Year 7 of a 5-year NSF RCN award (second no-cost extension)
- ▶ Funds remaining: ~\$20,000
- ▶ End date: April 2020
- ▶ Possible uses:
  - ▶ USCCN meetings
  - ▶ Attend and present at culture collection-related conferences
  - ▶ Publications



## Plans for 2020 and beyond

- ▶ Write a RCN proposal to NSF
- ▶ Advice from NSF:
  - ▶ Expand beyond 2012 aims
  - ▶ Interact with broader living collections community
  - ▶ Embrace emerging opportunities; respond to emerging needs



## Status of 2018 manuscripts

Re-submitted Sept 2019, Under review in Journal of Applied Microbiology:

“Preserving U.S. Microbe Collections Sparks Future Discoveries”

Kyria Boundy-Mills<sup>1\*†</sup>, Kevin McCluskey<sup>2†‡</sup>, Patrick Elia<sup>3</sup>, Jessie A. Glaeser<sup>4</sup>, Daniel L. Lindner<sup>4</sup>, David R. Nobles, Jr.<sup>5</sup>, Jennifer Normanly<sup>6</sup>, Francisco M. Ochoa-Corona<sup>7</sup>, James A. Scott<sup>8</sup>, Todd J. Ward<sup>9</sup>, Kimberly M. Webb<sup>10</sup>, Katie Webster<sup>6, 11</sup> and John E. Wertz<sup>12</sup>

Very rough draft in Google Docs:

“Data resources and data standards of US microbial culture collections”

Kyria Boundy-Mills<sup>1\*@</sup>, Kevin McCluskey<sup>2\*</sup>, Anita Bandrowski<sup>3</sup>, Jessie Glaeser<sup>4</sup>, Conrad L. Schoch<sup>5</sup>, James Scott<sup>6</sup>, Shobha Sharma<sup>5</sup>, David Smith<sup>7</sup>, Todd Ward<sup>8</sup>, Francisco Ochoa



# Proposed USCCN committees

## 1. Membership Committee:

- ▶ develop and post a database of US culture collections and contact information.
- ▶ Collect information on status of collections, including whether they are endangered.
- ▶ (We need to decide whether to include collections that are not yet publicly available.)

## 2. Communication and Outreach Committee:

- ▶ Lead publications and social media. (Sponsors like to see products such as blogs and newsletters.)

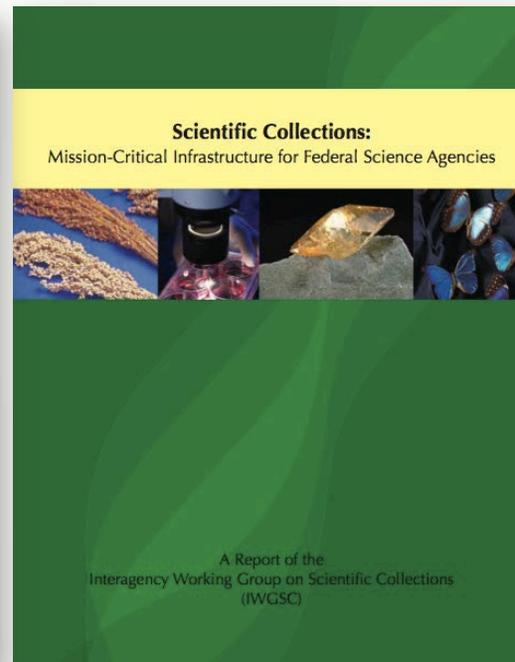
## 3. Networking Committee:

- ▶ interact with other life science networks and societies, both domestic and international

## 4. Standards Committee:

- ▶ explore standards such as for cryopreservation techniques, minimum data sets, block chain access to strain information, etc.

# Status of reports about living stock collections



Two reports now in preparation:

- ▶ NSF-funded report on biological collections – early 2020
- ▶ Interagency Working Group on Scientific Collections – late 2019

2007 IWGSC report

[https://usfsc.nal.usda.gov/sites/usfsc.nal.usda.gov/files/IWGSC\\_GreenReport\\_FINAL\\_2009.pdf](https://usfsc.nal.usda.gov/sites/usfsc.nal.usda.gov/files/IWGSC_GreenReport_FINAL_2009.pdf)

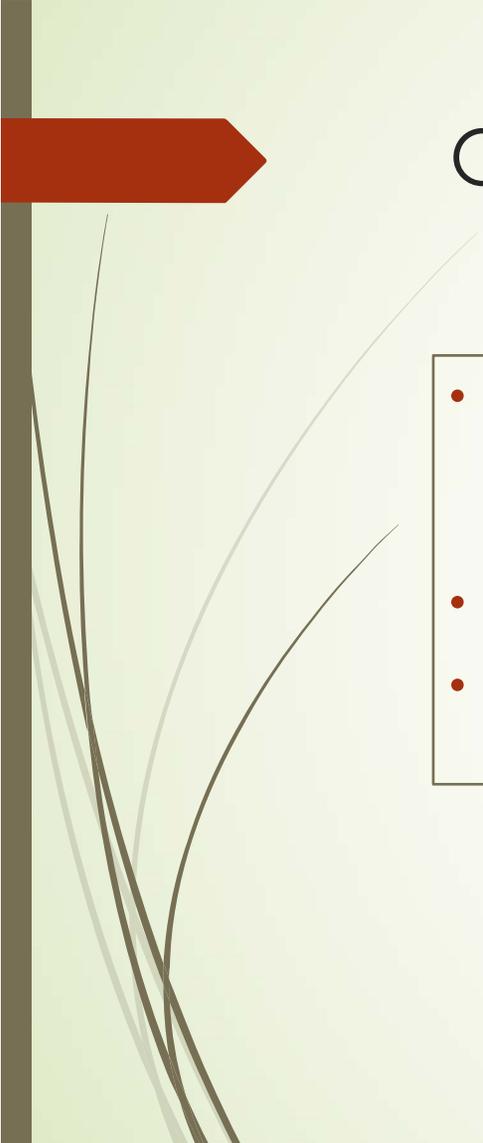


# Comparison

Issue	IWGSC report	NSF report
Audience	Federal agencies	NSF
Types of specimens	Object-based scientific collections	Biological collections (NHM, living stock)
Collections addressed	Federal collections	Collections eligible for NSF funding
Process	Federal technical experts	NSF: Statement of Task. Coordinated by National Academies. Committee of technical experts via nomination process (posted online) External review

## MISSING:

- Collections used in applied research (USDA, NIH, DOE, etc.)
- Non-federal collections not supported by NSF
- Diluted: Living stock collections



## Opportunities for further exploration:

- Include collections used for basic life science PLUS applied areas: medical/health, food/agriculture, biotechnology, etc.
- Focus on living stock collections
- Engage technical experts from a broad range of living stock collections



# Opportunity: USCCN report on living stock collections

## **Audience**

Collections community:

- government agency, academic, and private nonprofit collections
- Collections networks
- Scientific societies

Users of collections:

- research (academic, govt agency, industry)
- Education (formal, informal)

Funders and supporters of collections:

- federal agencies
- host institutions
- benefactors such as foundations and private donors

# Outline of report

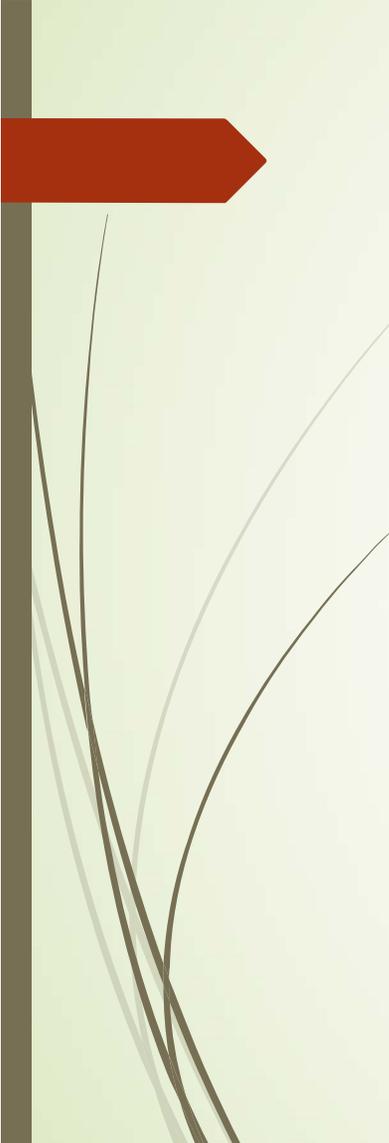
1. Primary messages
2. Contributions of living stock collections to research
3. Emerging research using living stock collections
4. Contributions of living stock collections to education
5. Resources required by living stock collections
6. Financial models
7. Advantages to strengthening US living stock collections

Level	Characteristics (from Smith et al. 2014)
Basic	Specimens Data
Intermediate	Appropriate facilities and personnel Data management International distribution (including Nagoya) Involves stakeholders Networks with collections, users
High	Trains personnel in emerging BRC needs Formal QC Properly handles IP Biosafety, biosecurity ISO certified Disaster plan Sustainable support Leads at national to international level
BRC	Quality standards accredited and certified to OECD standards Functioning according to OECD instruments



## 8 Messages

1. US life science researchers need appropriate resources to compete at the global level.
2. Biological collections are an essential element of the infrastructure that supports life science.
3. Living stock collections possess common elements.
4. There are many different types of collections, specimens, data and services because they are used for different purposes.
  - ▶ Categories of collections: Biodiversity collections, research organism collections, and genetic stock centers
  - ▶ Types of organisms: Microbes, fungi, algae, plants, invertebrates, vertebrates
  - ▶ Kinds of materials: Wild-type organisms, mutant lines, libraries, plasmids, purified DNA or RNA, media, teaching kits, DNA prep kits
  - ▶ Services: species ID, serotyping, mass culturing, archive service, authentication, protocols, workshops



## Messages, con't

5. Different kinds of collections share common goals and can learn from each other.
6. Developing and following best practices benefits both the collection and the user community.
7. Living stock collections experience challenges large and small.
8. Specific recommendations will enable US living stock collections to better meet the needs of US life science researchers.



## Information gathering: spring 2019

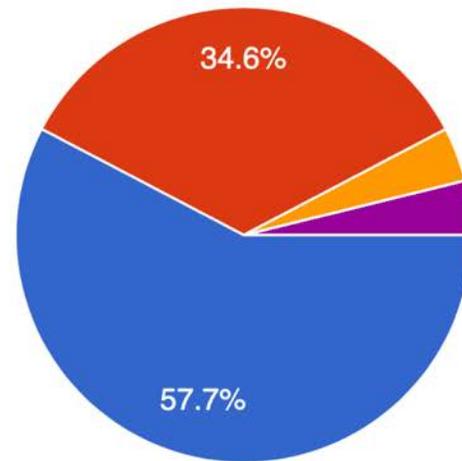
Questionnaire sent to microbe collections – 19 responses

Questionnaire sent to living stock collections – 26 responses

- ▶ What species, and how many accessions?
- ▶ How is the collection used?
- ▶ Are specimens distributed? Do you have an online catalog?
- ▶ How many orders/specimens per year?
- ▶ What fields of research?
- ▶ What new products and services do you offer?
- ▶ What new products or services were requested but not available?
- ▶ Describe quality control, database, annual operating budget, funding sources, long-term plans
- ▶ What conditions threaten the future of your collection?

## What kind of institution is your collection associated with?

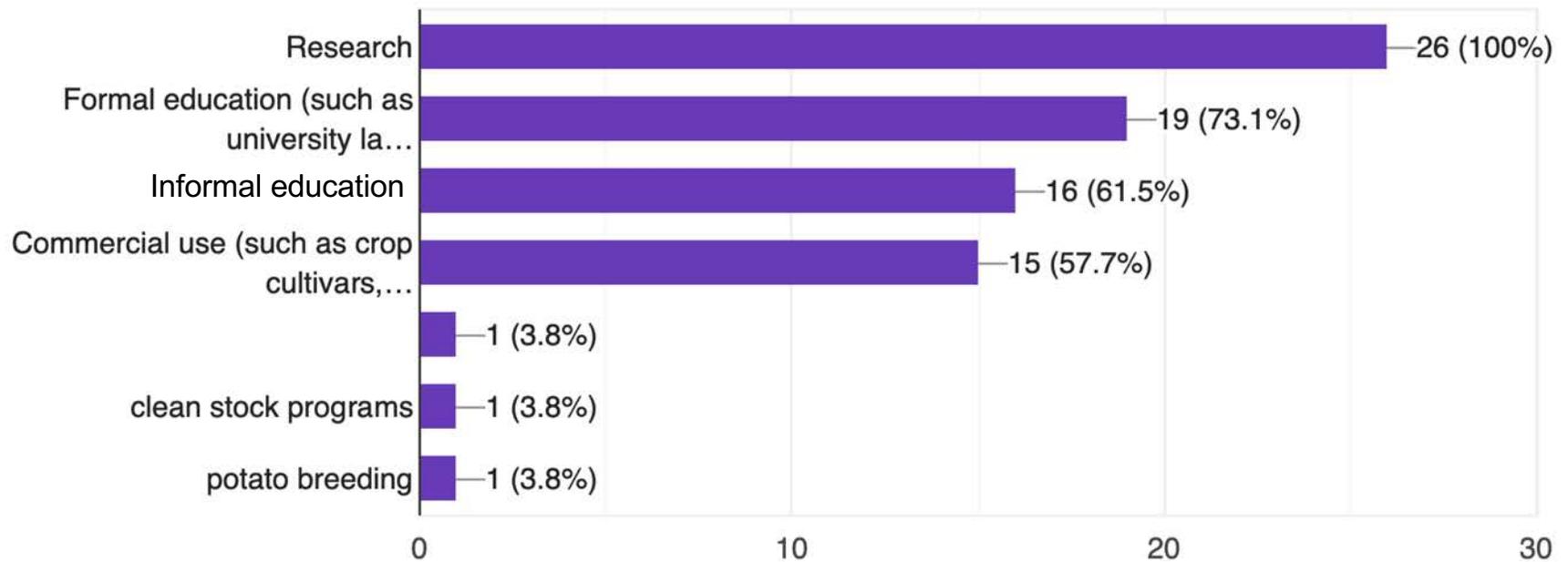
26 responses



- University
- Government agency
- Private nonprofit institution
- Commercial company
- Cooperation of state and federal

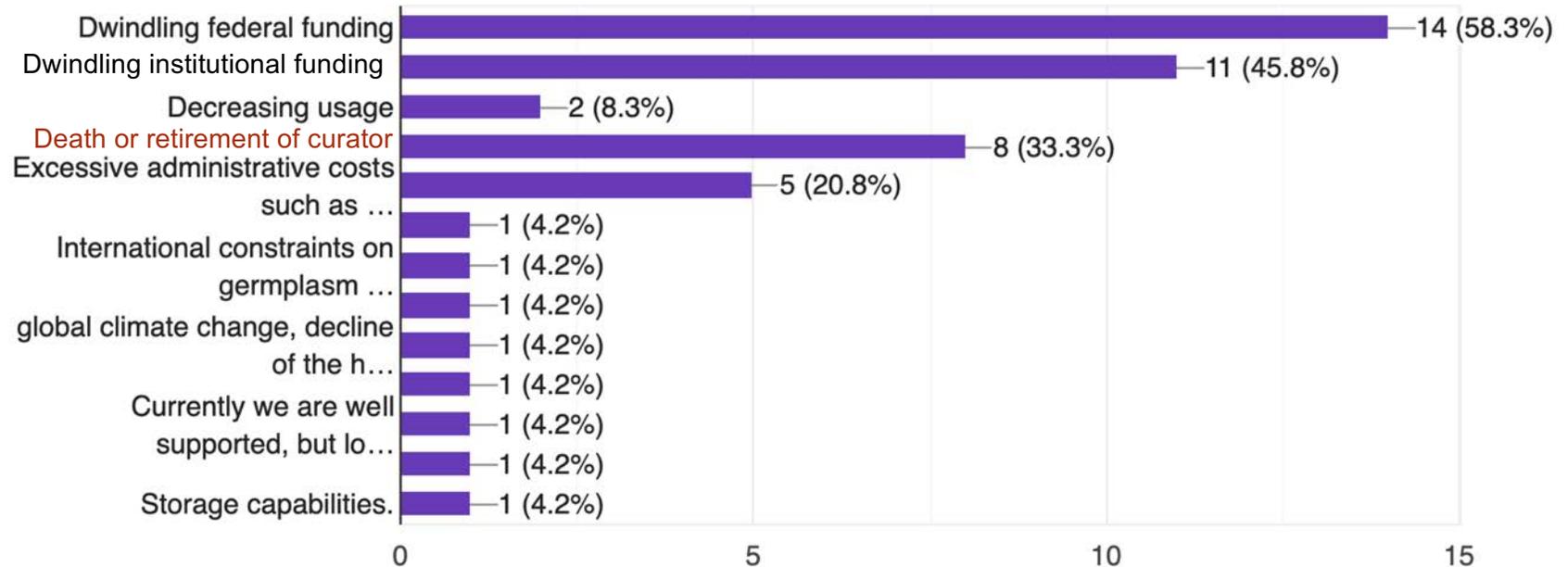
## How is your collection used? Check all that apply.

26 responses



## What conditions threaten the future of your collection? Check all that apply.

24 responses



## What type of quality control program does your collection have? (check all that apply)



22 responses

