

“Putting it all together”

Putting it all together

Taimyr

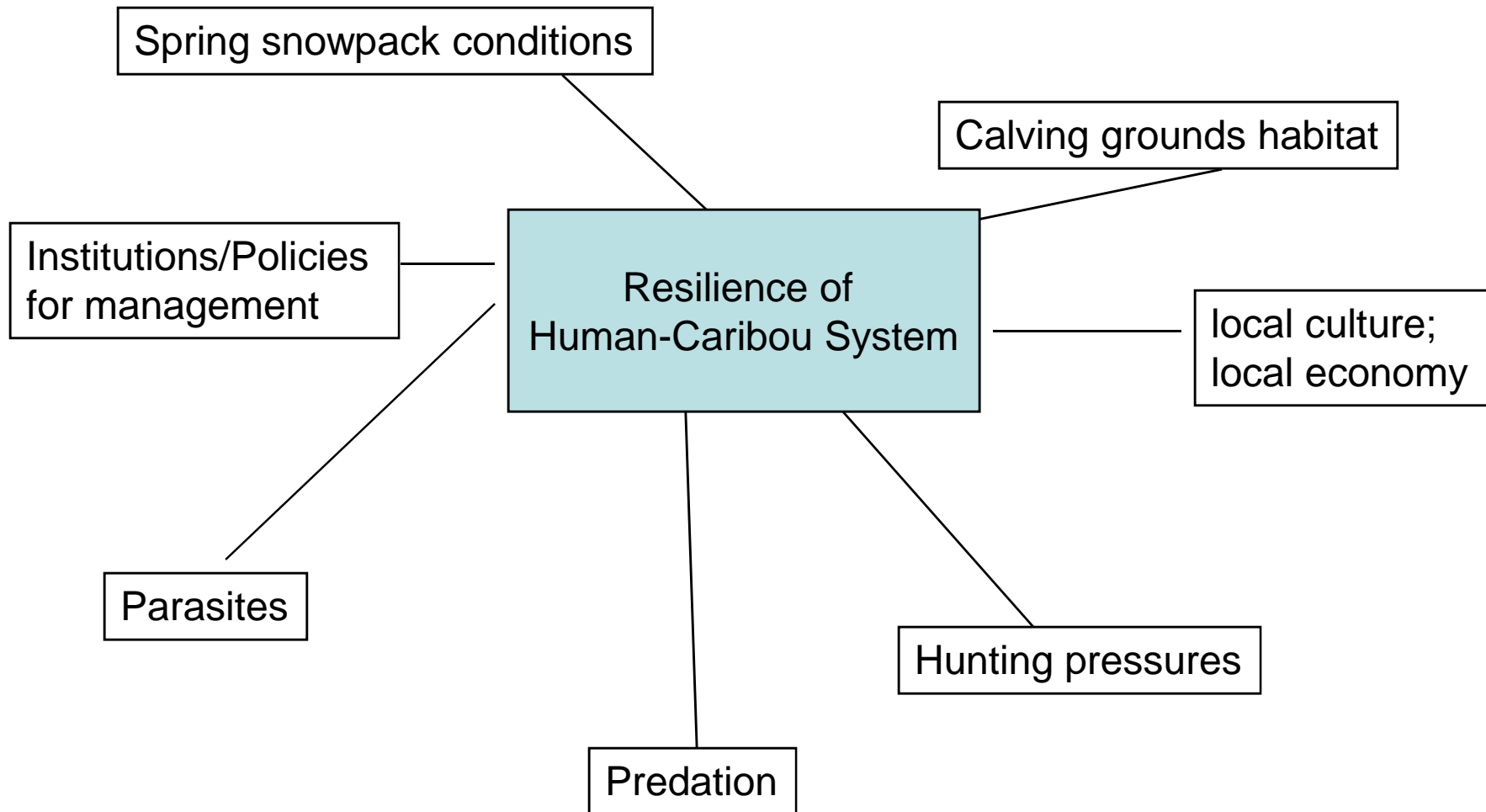
George River

Western Arctic

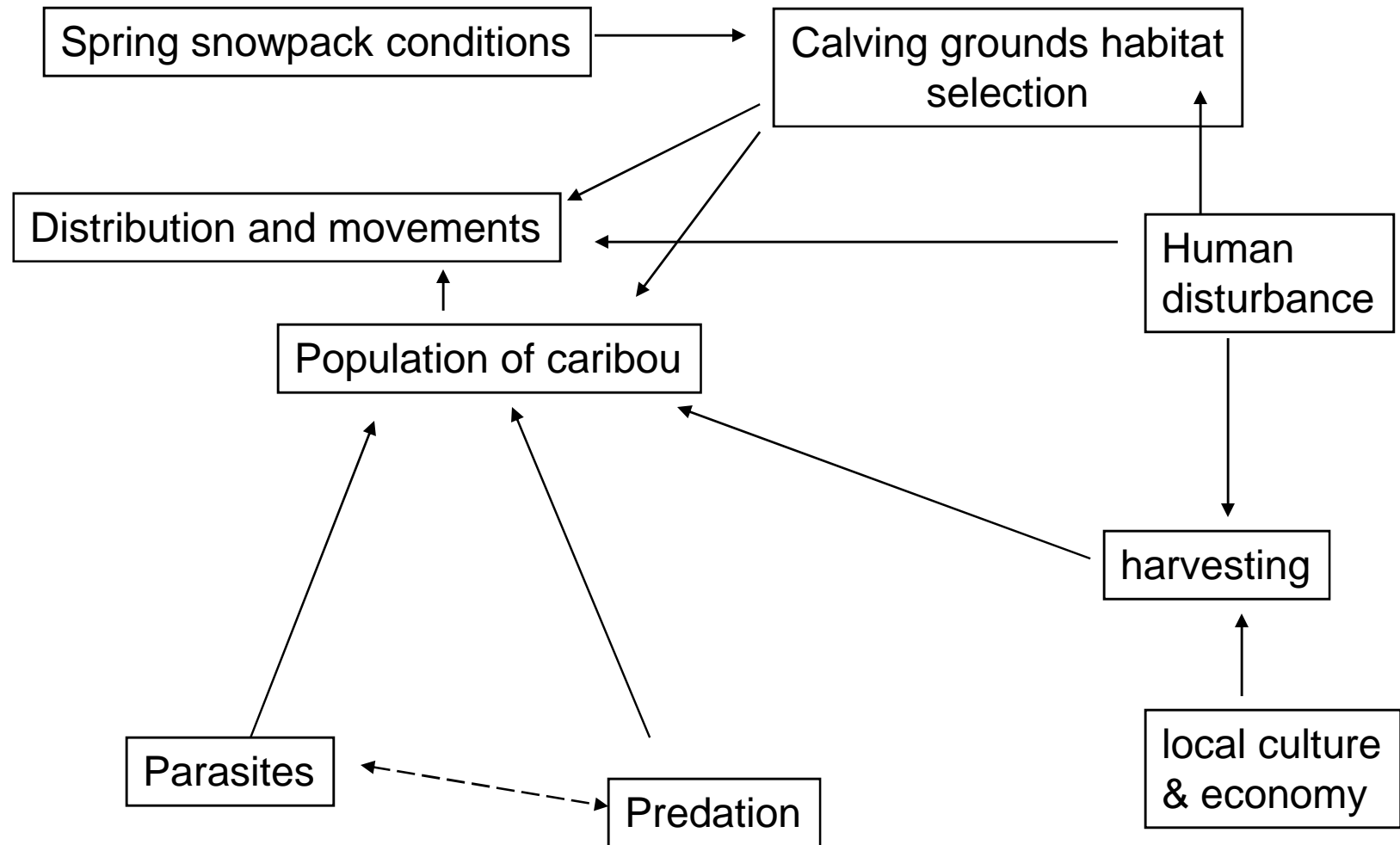
Porcupine

Bathurst

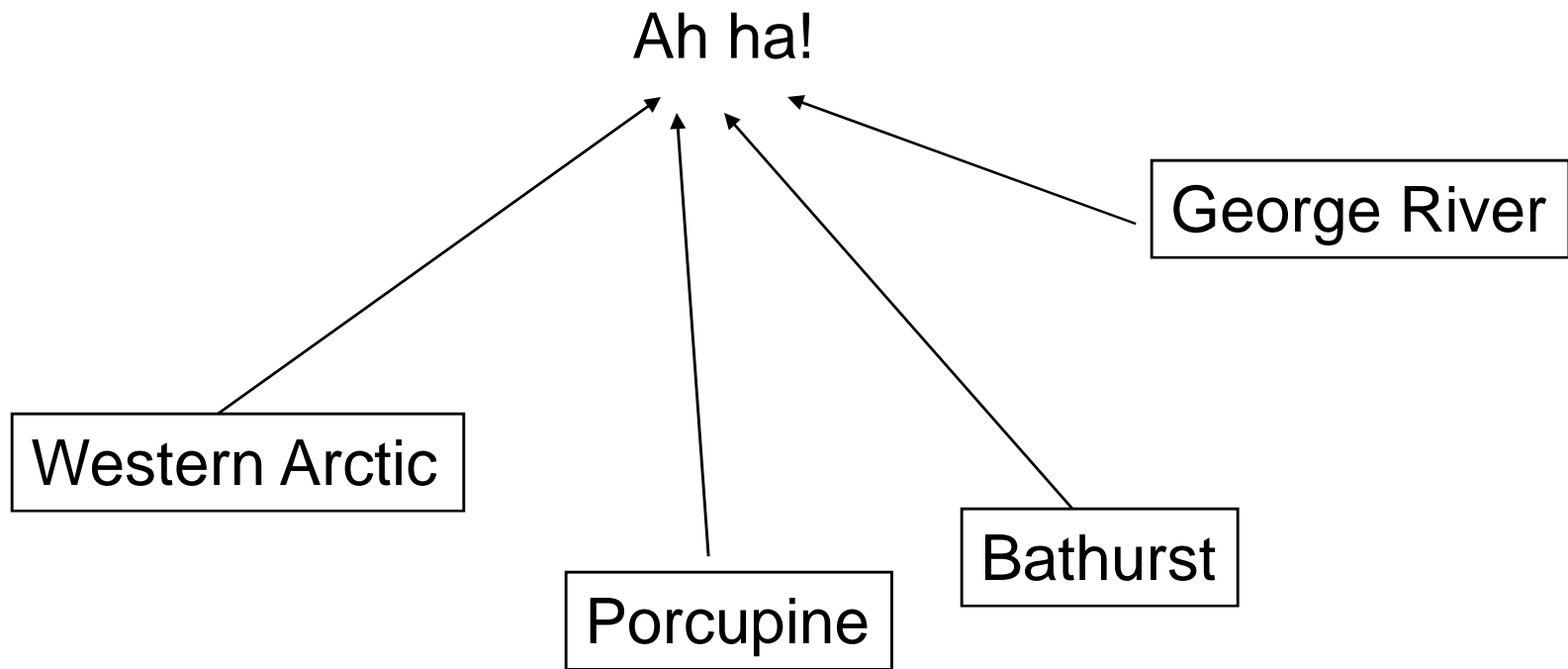
Putting it all together



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CARMA products

- New partnerships
- Dataset / way of sharing data; way of adding to data
- Summary reports
 - Comparative assessment to answer the questions
 - Vulnerability and resilience of Human-Rangifer Systems
- Make films (Voices”, health sampling)
- Manuals (census, body condition & health, remote sensing)
- Training & education (theses & curriculum...)
- An Anatomy Atlas
- Computer Models
- Decision support tools
- CARMA Website

Breakout Charge #1

- Review CARMA's product list
- What should be added and subtracted and modified?
- Summaries, synthesis:
 - What should be done?
 - Who would do what? When?
- What should be the focus after IPY?

Group 1

Breakout Session #1 Report

Task#1: Review product list (Δ , +, -, *Prioritize*)

- Prioritize:
 - Central repository of data: Widely available
 - How to products: Manuals
 - IPY Snapshots: Status reports, films
 - Prognosis: Looking to the future – “adaptation handbook”

Task#1: Review product list (Δ , +, -, *Prioritize*)

- Progress ...
 - How to products: Manuals
 - IPY Snapshots: Status reports, films
 - Central repository of data: Widely available
 - Prognosis: Looking to the future – “adaptation handbook”

Task#1: Review product list (Δ , +, -, *Prioritize*)

- Prioritize:
 - How to products: Manuals
 - IPY Snapshots: Status reports, films
 - Central repository of data: Widely available
 - Prognosis: Looking to the future
- Missing Pieces
 - Education Focus, Policy Focus
 - Harvest regulation policy – eg. caution levels etc
 - Adaptation Handbook
 - Bibliography beyond peer-reviewed literature

Task#2: Summary/Synthesis

“Putting it together”

- For whom:
 - Communities: Councils, schools and general
 - Co-management boards
 - General public
 - High-level policy (IPCC, legislators)

Task#2: Summary/Synthesis

“Putting it together”

- Summary report 1:
 - Detailed 6 chapter report
 - FAQ type
 - Community booklet,
 - Website (Media, general public)
- Summary report 2:
 - Industrial development
 - Caribou resilience
 - Community resilience
 - Climate Change
 - Cumulative effects handbook

Task#3: Beyond IPY

- Circumpolar Arctic Caribou Co-op
 - Community based and science-based
 - Eg. ABEK Co-op, Lutsel K'e
 - Sustainable, Long term

**CARMA 5TH ANNUAL MEETING
DEC 3, 2008 - BREAKOUT SESSION 1**

1. REVIEW PRODUCT LIST:

Bruno – Bathurst – not much seems missing

CARMA – Anne – book

Chris: priorities – 1) data legacy – central repository
2) Protocols, manuals to keep info flowing in

Roy: educational component – elementary level (youth); legislative/policy (decision makers)

Joe J: reference harvest levels – eg. caution zones – dss/models

Joe T: don't see change on the product list – how are all the changes related to climate chg going to affect the caribou (what is happening and why?) – documenting species chg over next 50 yrs

Dorothy: Bibliography – tons of reports not in literature (vol is much bigger than just peer reviewed) – key word search, contacts listed

Outreach to policy makers

- Peter: deliver climate chg prognosis – this is what drives legislators and their policies

- Roy: IPCC and ICC seat at UN – how to reduce impacts of CC, concerns about pollution ... CARMA should have some dynamic to go to that level (ICC) – international meeting with ICC in Anchorage

- Joe T: Arctic Forum

Archana: **Increased availability of info to communities** – suggest CARMA involvement in translation into Inuktitut (other languages?) – communication must be in both directions – mechanism for this as part of the product list

Kathy: product list – how to products (manuals) are basically done – there are also in-progress pieces (voices video, for ex.) – prognosis is missing – summary report – idea of handbook for adaptation (eg. getting low-energy light bulbs to AK...?) – this may be region-specific - ** linking Rangifer-human aspects together – “adaptation” theme for humans and caribou

2. SUMMARIES, SYNTHESIS – “Putting it all together”

For whom?

- obviously for communities (but prob with “consultation fatigue”, people are “meeting’d out”)
- but also high level (IPCC/UN) – needs to be concise as well as rigorous
- so ... do we customize these 2 (or more?) main synthesis for several audiences

Joe T: re. extended funding for CARMA – Aboriginal voice

Pictures, voices – linking the “issues” with real people
Pamphlets, booklets

Chris: for researchers, job shouldn’t end until it’s communicated back to community members (pamphlets, dinners, etc -) (both at university AND when communities agree/negotiate projects with from beginning)

Ideas for format/content:

Summary Report #1 (6 synth questions) – 2 parts

- A) A large thorough detailed (format like ann general report) maybe 6 main chapters (one per question)
- B) FAQ – community level (booklet form, like “being caribou”), media, general public ... web? (not everyone has access) – must go beyond just web site
 - not structured around 6 questions, no models, use stories extensively

Summary Report #2 (resilience)

How do we respond to changes? What is our best guess at what will happen?

- speaking to industrial development question and the two divergent sides (1 with employment priority, 1 with “no change” thrust w.r.t. resource extraction)
- what does it mean for caribou resilience, community resilience (balanced ... less divisive)
- regional differences US/Canada

- cumulative impacts focus, aimed at communities – oil/gas, gas, diamonds, uranium (associated roads – esp in post-calving areas, but how about winter range) – example effects of winds from Norilsk smelter

Laurie – Wiki presence, update Web site

3. POST-IPY

Circumpolar Arctic Ecological Knowledge Coop
(like Arctic Borderlands ... Lutsel Ke) – mixed community-based and science-based (relatively cheap compared to some other sci activities – collaring etc.)

- feedback to the communication process we talked about earlier
- needs to be long-term, sustainable, not just 3-4 yrs

Group 2

What to add

Communications:

- need for communication strategy overall
- Carma Promo stuff – tee shirts
- CARMA newsletter
- Inclusion of CARMA in other newsletters
- meeting documentation (at the end of each meeting)
- web casting of CARMA meetings
- Contact lists (e.g. for expressing interest in samples)
- Keep Animations up to date (migrations)
- Video excerpts or product previews (on the web - Integration of sound (not sure if this is a product))
- Sample collection – need to keep communities up to date on results

Data, sample and information management:

- Acquisition and storage of historical data
- Metadata
- Publications (capture them), possibly can be done on the web
- Standard for referencing publications
- Listing of archived samples (e.g. bone samples, tissue samples)
- List of projects underway (from universities?), who is doing what
- What is the status of sample archiving

Standards

- evaluate the manuals (manuals as living documents)

Decision support tools

- Land use impacts, is it just raw data, or is it analysis/recommendations (e.g. ways to do impact assessment)
- Land management – information needs including outcome of fire management

Future of CARMA after IPY

- New technologies (count populations, gene structure)
- Tools: Understand impacts on gene pool
- Experimental research – pathogens – treatments and controls
- Cross herd comparisons with result in hypotheses to be tested down the road
- Future funding proposals will need to identify community needs

What to drop

Who to do it & when to do it

- Summary Reports (discussion with Lincoln)

General recommendations

- revisit sample archiving systems and Carma's role
- need recommendations for national/international exposure of Carma (e.g. representation at conferences)
- communication plan for CARMA
- survey tool at end of meetings (i.e. what new ideas did you have) – can we do it this year?
- CARMA should be pointing out data gaps and research needs (and priorities) – e.g. could be dealt with at next meeting (maybe don't wait, do this as a virtual meeting)
- Can CARMA use virtual meetings more effectively (teleconference, web meetings)?
- Experimental research to test hypothesis (e.g. extend and work more with people doing vegetation work assoc. with climate change, testing what effect removing parasites – A. Dobson)
- More cross continental comparison (Lincoln)
- Respond to community needs (in terms of generating future funding)
- Joint opportunities with boreal caribou

3 Dec, 2008

Group 3 – Breakout Session #1, Wed morning, Ryan Brook facilitator

1. Review of CARMA's product list

- Peer viewed publications
- CARMA “product” – a framework / point of contact + designated personnel for PR and information dissemination.
 - o Link up with existing infrastructure for information exchange
 - o Facilitate new infrastructure
- CARMA to develop a manual of “how to do research in communities” so that bridges aren't burnt by some researchers that affect all others
 - o Timing, protocols, permits, payment of community members
- website – kept current, discussion about the features of the updated CARMA website, desirable to include information that biologists can use to inform and create dialog with communities, also list the existing CARMA “deliverables”
 - o discussion that the first CARMA “deliverable” priorities overall be aimed at biologists so they can bridge the gap between communities and researchers – this to occur sooner rather than later
 - o highlighting the need for designated personnel for website and related PR and products
 - o website to include the newsletters from all jurisdictions
- Reports and presentations back to the communities
 - o These are distinct from the products that are for other researchers
 - o Brochures, newsletters, and websites mentioned as desirable – “advertisement” of CARMA indirectly, but also builds trust, capacity, understanding; contribute to “legacy” of CARMA
 - cannot ONLY be websites because not all communities are routine users of the internet
 - comments about the need for appropriate community members to also seek out information once they are aware of sources of information (e.g. newsletters)

- prioritize samples/pathogens
 - o then this could include very basic information that doesn't require sample collection
 - but in order for this to work, still need a certain level of training/standardization so that data is recorded in a useable form – this requires some training of local personnel
 - CARMA could create products in the hope that others will use the, legacy
- Training and education at community level, formalized
 - o for community schools – welcomed by community leaders, principals etc
 - o may need someone with specialized skills to develop educational resources
 - o training of local community biologists, personnel, wildlife officers other non-territorial-level government agencies – develop a set of contacts for different communities within herd ranges
 - need an organizational framework/structure that could be taken by CARMA members to these different entities to help integrate
 - this needs to be coupled with consistent, “as soon as possible”, report back to the community
 - realistic and transparent explanation of what samples will be used for, how long things like lab results take to come back
- “self-promotion” of CARMA – who is CARMA, what do we do, projects, etc
 - o Some concerns about multiple organizations etc, also that “CARMA” vs other funding organizations come-and-go. Result of funding changes, grants come and go.
 - o Report cards back to community members so that hunters are acknowledged and also receive information on results and which organization ran the samples etc
 - o We need a PR/dissemination person for CARMA – tasked and PAID especially for this – also contributes to LEGACY. Researchers/biologists/grants come and go.
 - Perry – example of ARCIS
 - Sub-contract for website services etc

- Mitch – comments about community-oriented disease manual (CCWHC – Ted Leighton) so that CO's, communities, etc can be in a position to use a key etc about what “abnormalities” might be, which samples to collect etc

2. Summaries, synthesis: what should be done? Who should do what?

When?

- Contract someone to specifically compile the final document, especially one that is developed for communities and other interested lay parties

there are existing programs that have gone through similar challenges/exercises. What can CARMA learn from these other programs - avoid reinventing wheels

e.g., Northern Contaminants Program (Enviro Canada) – mixed messages about food safety can be minimized by providing targeted information (e.g., mercury levels – different issues for breastfeeding mothers versus other adults)

e.g., Nunavik Research Centre

e.g., existing Norwegian organizations

- Matrix of who is doing what so that people know how is doing what – give an idea what might be compatible projects/questions to “synthesize”

Scenario planning (e.g. climate change – what do we know from CARMA data sets this year that could let us create a synthesis, including what we know, what we will know in a few years; a living document.)

This could be used to identify knowledge gaps as well changes in priorities (e.g. is anyone actually using caribou milk? If not, do we need to be collecting it?)

- Time conflicts arise between deadlines versus how long it takes researchers to really analyse and evaluate their own data sets
 - o Don't want to accidentally be misleading people with statements about connections, relationships

Data Sets

Way of Sharing & Adding to DATA SETS

- 1) High priority for CARMA to make data sets
- 2) Retrospective data sets important, not just the ones collected now or in future. So the points below would also apply to retrospective data sets.
- 3) Multilingual (define e.g., English, French, Danish, Russian, Finnish)
- 4) Access the question...what kind of data and how much data to make widely available. Perhaps Metadata would be a good solution
- 5) Protocols for recording data and definitions for terms
- 6) In the interest in sharing existing data there is a need to compare protocols (e.g., what is symbol for decimal place, state whether data is in imperial or metric units).
- 7) CARMA should provide some standardized data sets (i.e. at a high level), summary only. Make these across herds.
- 8) Website availability - Have these summary standard data sets, across herds, available on the Website. This would permit us to compare quickly.
- 9) Website availability – Physical independent variables brought together and made available as well, i.e., NDVI across the arctic with links to Anne Gunn's vegetation SHAPE files across the Arctic.
- 10) Climate data

Summary Reports

- 1) Data summaries
- 2) 2 audiences
 - Public, e.g., popular publishing
 - Scientists, e.g., Published papers
- 3) Need more than just data summary, we also need analysis of variation in population
 - Demographic analysis
 - Post doc involvement or dedicated person to take care of this?
- 4) Too many variables to examine in one analysis, so separate out into separate analyses e.g.:
 - Parasite / pathogen
 - Habitat / Physical variation
 - Demographic variables
- 5) Identify basic information – We need to bring together by herd (this point feeds back into point number 1).
- 6) GET STARTED! We won't get the perfect dataset to start with, as data not collected by the same methodology from everyone (nor has it been in past), but don't wait, get started and refine as the years (decades) go by.

Film

- 1) What happens to samples?
- 2) How to do a level 3 sampling? For example:
 - How to take foetal blood sample
 - How to take body measurements

- 3) Regarding point number 2 it is obvious CARMA would benefit from 2 (two) types of films
 - Films that communicate with the public (Voices, hunter sampling, what happens with samples)
 - Films that communicate with scientists regarding technical procedure(s)
- 4) How to act responsibly on the land
 - Responsible hunting e.g., narrated by chiefs of native groups
 - Responsible management for Russian government (Russians thought this was needed).
 - To bring about debate - Kids could be target audience, as well as hunter or community meetings could be target audiences too.
- 5) How to select good caribou, and males versus females - Kids could make this film with the help of the elders.

Manuals

- 1) Address Tooth ageing protocols needed now – there should be NO guesswork in this. Animal age is a pillar / keystone data that the rest of our data is being built around. There is no room for ± 2 years on an animal age. It is possible to get the exact age, and this should be the target for CARMA. Currently standardization and knowledge for correct tooth ageing is lacking, although information is available or should be from Scandinavia (and Russia?).
- 2) Translate the manuals
- 3) Manuals available from Website (downloadable electronic) and HOW TO USE the manuals.
- 4) HOW TO Analyse data, for example
 - Manual for statistics typically used and what they are used for or are good for, what do you get out of them.
 - Manual for census of animal abundance / demography
 - Manual for diet
 - Manual on “Basics”
 - Manual of habitat assessment (on the ground)
 - Manual for how to evaluate snow
 - Manual for how to evaluate development / impacts
- 5) Interactive forum (a website?) comparison of methods for anything and everything (the forum would list the methods used and then the interactive forum would give the pros and cons they’ve experienced with each method. This would help new biologists)

Training & Education

- 1) A book (work with TWS (The Wildlife Society) as they already have published the Wildlife Management Techniques textbook with several editions over the past 4 decades) with all our manuals and protocols. Thus reach larger audience than just *Rangifer* folks.
- 2) Exchange visits by scientists
- 3) Atlas – NEED \$\$\$\$

Computer Models / Decision support Tools

CARMA Website

- 1) Useful to be able to questions and answer questions about data that is available out on the website. Once on the website, something is in error within the data, which is available out on the website. Therefore need check the datasets for errors and have ability to correct them and NOTIFY website users that the dataset have been “corrected” (so that they do not continue to use an “incorrect” earlier version).
- 2) Given above, need to FLAG datasets that have been changed.
- 3) Discussion FORUMS, would be useful for questions and answers dialogs
- 4) Video conferencing
- 5) Datasets and metadata and the grey literature available
- 6) Manuals, Reports, videos etc. available for download
- 7) Make it a One-Stop-Shop
- 8) Links to physical datasets
- 9) Links to experts
 - Bios of researchers
 - Who is Who (and what are they doing)
- 10) List of CARMA publications.
- 11) List of projects currently in progress and contact info to project leaders.

HOW TO Continue this work beyond 2011 (when funding ends)

Life After IPY

- 1) Under Arctic Council?
- 2) U.S. Climate Change funding? (now that there has been change of gov't in USA there may be \$ available that were not before).
- 3) NSF grants?
- 4) GLORIA (Russia) under man named Greg Cole.