

Indigenous Youth, Food Knowledge & Arctic Change

EALLU



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**AN ARCTIC COUNCIL SUSTAINABLE DEVELOPMENT WORKING GROUP REPORT
FROM THE EALLU PROJECT IN 2015–2017**



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DISCLAIMER

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EXECUTIVE SUMMARY

By Anders Oskal, Philip Burgess, Mikhail Pogodaev, Svein D. Mathiesen, Svetlana Avelova and Alena Gerasimova.

This is a book about the fabulous abundance and diversity of food in the Arctic. While many think of the Arctic as a place of climatic extremes and scarcity, in fact the Arctic hosts an extraordinary food culture, built on 10,000 years of knowledge, and intergenerational knowledge transfer.

Over millennia, Arctic Indigenous Peoples' culinary traditions and food cultures have nourished peoples, enriched communities, bound generations and embodied the very essence of 'sustainability'. Indigenous food production and processing systems ensured that by connecting to the deep cycles of the seasons, sun and moon, their specific ecological niches, and their rich knowledge; herders, hunters, fishers and gatherers could sustain human and animal life over thousands of years. This is not 'Traditional Knowledge' constructed in the form of a declaration or political statement. This is ancient knowledge enacted in the everyday. Still today, in some regions of the Arctic, life would not be possible without this commonplace reality of slaughtering, preparing, storing and consuming foods in the traditional way.

Arctic change is underway and is rapid, and climate change is one of multiple drivers (ACIA 2005, AMAP 2012, IPCC 2013). Others include significant land use change, globalization, new challenges for traditional livelihoods, de-

mographic and cultural change, and multiple social and health indicators that point to challenging times ahead for Arctic Indigenous Peoples (Larsen et al 2014, Glomsrød, Duhaime & Aslaksen 2017, Glomsrød & Aslaksen 2006).

To our knowledge, this is the first attempt to present an overview of the culinary world of Arctic Indigenous Peoples in one volume. This book provides a snapshot of the rich, diverse and living culinary traditions of the food systems of Arctic Indigenous Peoples. We also want to show that the skills and knowledge associated with these food systems is also undergoing rapid change. In some areas, the skills and knowledge needed to slaughter, hunt, gather, feed ourselves and our communities and conserve food traditionally are in peril. A 'public health crisis' is underway in some parts of the Arctic, due to unprecedented dietary shifts away from traditional foods. A direct correlation can be drawn between many physical, social and mental ills to an increased reliance on market foods of poor quality, and decreased consumption of nutrient dense traditional foods (Council of Canadian Academies 2014).

The Arctic has become a fully integrated unit of the global economy. This process will intensify over the coming decades. What this will mean for the regions' Indigenous Peoples is central to discussions going on in communities, big and

Traditional Knowledge is a systematic way of thinking and knowing that is elaborated and applied to phenomena across biological, physical, cultural and linguistic systems. Traditional Knowledge is owned by the holders of that knowledge, often collectively, and is uniquely expressed and transmitted through Indigenous languages. It is a body of knowledge generated through cultural practices, lived experiences including extensive and multigenerational observations, lessons and skills. It has been developed and verified over millennia and is still developing in a living process, including knowledge acquired today and in the future, and it is passed on from generation to generation.

Definition from the 'Ottawa Traditional Knowledge Principles' developed by the Permanent Participants to the Arctic Council. The Inuit Circumpolar Council use the term 'Indigenous Knowledge' which also follows this same broad definition.



Máret Rávdná Buljo with her son, Jusse Niklas, Kautokeino, Norway. Photo: Anders Oskal

small, in villages and in the tundra and taiga; across the Arctic and sub Arctic. These changes will also impact Indigenous food cultures and systems.

While diversity could be seen as an important dimension in local adaptation, the wide ranging topographic and climatic factors across the Arctic has also produced diversity, namely a diversity of Indigenous cultures and ways of life. To produce this book, a total of 16 different Indigenous Peoples from across the Arctic have been involved. This book is just one product from this exciting ‘people to people’ engagement, and it is our intention to expand its scope and engagement beyond this deliverable, while building on the passionate engagement by youth.

What will these changes mean for our communities? Our food culture and traditions? Our unique languages? Our physical and mental health? Can we harness the power of the market on our own terms? Can we retain and continue to use the knowledge embedded in our food systems? Can we develop our economical spheres in partnership with the land and animals that we share our territories with? Will our knowledge help us navigate future challenges? Can the food we harvest, prepare, store and eat be a part of our future solutions so that we can continue to thrive on our ancestors land?

These are some of the questions that we hope to answer by addressing the topic which we can *all* relate to: food. Food is clearly universal to all human beings. It is a single thing that is common to all, that is essential for human life (UN 2015). Illustrating this universal nature of food for indigenous peoples, Evenki and Even people in Eastern-Siberia have a term for greeting others that meant «*how was the hunt?*»

rather than «*how do you do?*» In the Arctic and sub Arctic, food is central to the very heart of who we are as peoples. Our food systems are the very essence of Indigenous traditional knowledge in practice. They are real world sustainability in praxis.

We are trying to present more than just an ordinary cookbook, with mere recipes. Rather we are attempting to create ‘*a foodbook about peoples*’: This is the story of Arctic Indigenous Peoples, their food resources, their culinary traditions, and their traditional knowledge on food. We attempt to give a holistic view through examples of the food systems of Arctic Indigenous Peoples, presenting the whole process: How food is collected, how it is prepared, how it is processed, how it is conserved, how it is consumed, including traditional knowledge on food in the forms of stories, anecdotes, values and insights. Included in this book are stories and examples from across the Russian Federation, Fennoscandia, Canada, Mongolia and the USA.

The EALLU project saw extraordinary engagement by Indigenous youth from many cultures and was energized by a passion for traditional food that runs deep through our communities. Over the course of the EALLU project, there has been 30 EALLU community-based workshops, seminars and traditional food-related events across Eurasia and North America, with more planned moving forward. Reindeer and other foods have been slaughtered, prepared and cooked in multiple ways. People have prepared, documented and eaten traditional foods of the highest quality. Elders, youth, herders and hunters, fishers and gatherers have talked about and eaten traditional foods: on the tundra, in the taiga, tents, *lávvu*, *chum* and *yaranga*¹. Discussions have followed

¹) *Lávvu*, *chum* and *yaranga* are various names for the traditional dwellings of nomadic peoples across Eurasia.



Photo: Andreas Ausland



Photo: International Centre for Reindeer Husbandry (ICR)



Photo: ICR



Photo: Andreas Ausland

in classrooms and online. All participants agreed and underlined that this is a topic of great importance and interest and one held closely to our hearts.

One of the primary concerns arising from the EALLU project is connected to the knowledge embedded in our food systems. To some extent it has already been eroded by assimilation, industrial food systems, food governance models, poverty and some of the more pernicious aspects of globalization. Without it, our peoples will be limited in their ability to adapt to future changes. We must continue to make use of this knowledge, the lessons learned from our stories, and follow the taboos, imperatives and guiding principles found within. These elements hold powerful lessons about how our food systems can sustain us over thousands of years.

BACKGROUND, OUR MANDATE

Traditional livelihoods are critically important for the diversity of Indigenous Peoples in the Arctic and Sub-arctic living within the present day nation states of Sweden, Finland, Norway, Russia, Canada, Alaska, and Mongolia. Their nomadic life ways have enabled the use of barren Arctic mountain, tundra, and taiga areas for food production since time immemorial (Oskal et al 2009). In this report we present the traditional food systems of Nenets, Sámi, Chukchi, Koryak, Dolgan, Nivkh, Evenki, Even, Yukagir, Dukha, Aleut, Athabaskan, Inuit, Iñupiat, Gwich'in and Yup'ik peoples.

This book is the intermediary report from the Arctic Council EALLU project (SDWG EALLU: Indigenous youth, climate change and food culture 2015-2019). This project is co-lead by Canada, Denmark/Greenland, Norway, Russia, USA, the Aleut International Association

and the Saami Council, and is managed by the Association of World Reindeer Herders (WRH) and the International Centre for Reindeer Husbandry (ICR). A central aspect of the project is that it is co-managed by Indigenous youth themselves, as a capacity building effort. The EALLU project is a direct follow-up of earlier projects of the Arctic Council, notably the *SDWG/ IPY EALÁT Reindeer Herding, Traditional Knowledge and Adaptation to Climate Change and Loss of Pastures Project* (2007-2011) (Magga et al 2011) and the *EALLIN Reindeer Herding Youth Project* (2012-2015) (Pogodaev, et al 2015).

This time, we combine our understanding of Arctic change and our methodology of Indigenous youth engagement with a focus on food, economic and societal development, and youth leadership.

The EALLU project is a follow up of point 22 of the Iqaluit Declaration on the occasion of the 9th Arctic Council Ministerial Meeting in Iqaluit, Canada, April 24 2015, that states:

[we] «...Welcome the work of the Arctic Council on reindeer herding and youth, and further welcome the promotion of food culture and leadership opportunities for Indigenous youth»

ARCTIC CHANGE IS IMPACTING INDIGENOUS PEOPLES

Today the Arctic is changing in ways unprecedented in our long histories in the north, challenging our traditional ways of life, our wellbeing, our food security and food sovereignty. The combination of these rapid changes occurring simultaneously constitutes a legitimate concern for the future of traditional Indigenous livelihoods and peoples. (Glomsrød et al 2017, van Rooij et al 2016). Examples



Issát Turi with the complete spine of a reindeer, ready for cooking. Photo: Anders Oskal

The word «eallu» is Northern Sámi for «herd», i.e. reindeer herd. Eallu bears a close relation to the word «Ealát». Ealát signifies 'Pasture', while Eallin means 'Life' in the Northern Sámi language. So from the pastures, springs life, both for the herd and the people.



Cooked bear meat, Topolinoe. Photo: Svein D. Mathiesen



Photos top & bottom: Anders Oskal, middle: Jean Polfus

include changing resource bases, shifting land use and/or settlement areas, combining technologies with traditional knowledge, changing the timing and location of hunting, gathering, herding, and fishing, and improving communications and education (AMAP 2017, Degteva *et al* 2017).

Furthermore, according to the IPCC 5th Assessment, while Arctic Indigenous Peoples practicing traditional lifestyles are facing unprecedented impacts from climate change and resource development (oil and gas, mining, forestry, hydropower, tourism, etc.), they are already implementing creative ways of adapting (AMAP 2017, Degteva *et al* 2017, Larsen *et al.*, 2014). The Assessment concluded by stressing the importance of local and regional decision makers in understanding and mitigating potential future development and advancing adaptation strategies. Tipping points for the continuation of traditional livelihoods exist and in some areas, may be passed in the next two decades. The protection and sustainable management of critical natural resources for the practice of traditional livelihoods needs to be rigorously examined, they concluded.

Indigenous Peoples practicing traditional livelihoods possess a rich, varied and valuable body of knowledge, which obviously includes knowledge related to cultural food production systems. All available types and sources of knowledge, which includes knowledge of food, needs to be included when developing adaptation strategies to climate change and other challenges in the Arctic. Recently, researchers (Huitric *et al* 2016) investigated what factors build and erode resilience in the Arctic. They found that the ability of people to self-organize underlies resilience in the Arctic and the erosion of this ability resulted in a loss of resilience. Self-organization requires knowledge, local-le-

vel monitoring, and the ability of people to define problems and implement an agreed-upon plan. A key step towards enhancing resilience across the Arctic is to understand the social, behavioral and ecological processes that are already building (or eroding) resilience and should include the social-ecological system of Arctic food production.

Finally, the role of governance must not be overlooked, even when talking about food. We assume co-management and participatory processes alone are not enough in the field of Arctic Indigenous Peoples' food governance but if we are to fully prepare communities to change in the Arctic, we also have to include traditional knowledge about Indigenous Peoples food systems. For example, recent research has underlined the need for holistic strategies to include traditional ecological knowledge in governance of reindeer husbandry (Turi 2016).

OUR PEOPLES' FOOD CULTURES

Indigenous languages are central to the identity and worldview of the Indigenous Peoples of the Arctic. Language loss has a direct correlation to a loss of practical skills and coping, and ultimately, biodiversity itself. (Degteva *et al* 2017). Likewise, food can be seen as one of the strongest carriers of identity. Food culture is intimately entwined in the long histories of Arctic Indigenous Peoples, having played a pivotal role in the development of our cultures, ways of life and physical and mental wellbeing in some of the planet's most inhospitable natural environments.

Our traditional livelihoods such as herding, hunting, fishing and gathering are defining activities of who we are as peoples, and constitute the core of our cultures. And to remain who we are, we must continue to do what we do.

Or rather, put in another way for our purpose here, *to remain who we are, we must continue to eat what we do*. For Arctic Indigenous Peoples, the challenge is not just food security and sovereignty seen in isolation, but maintaining the fabric of who we really are as peoples, our cultures, identity, traditional knowledge, ways of life and world views. For millennia, our food systems have relied upon traditional knowledge to achieve sustainability and reciprocity in the relationships with the land, water and animals upon which we depend. This body of knowledge has enabled hunters, herders, fishers and gatherers to respond rapidly to change, thereby reinforcing community strength. This knowledge can also be seen ‘as a set of cultural practices that are essential for food security and food sovereignty’ (Council of Canadians 2014: xxi). Indeed one should always discuss food security in tandem with food sovereignty (Nilsson & Evengård 2015).

Our food cultures are not immediately visible to mainstream society, and the important role that this food culture plays is sometimes occluded by some of the more obvious challenges that Indigenous Peoples face in the Arctic. However, this issue is beginning to gain traction, as food underpins a multiplicity of other important issues for sustainability, human security and life in the North. Indigenous food systems are related to people, place, culture, the traditional and modern markets, food systems, physical, social and mental health, colonial histories, environmental and climate change as well as governance. Therefore, if we are to investigate what is best described as food insecurity, which research in some parts of the Arctic shows impacts women and children more severely (Council of Canadian Academies 2014), we need to address a host of themes including: governance and food sovereignty, gender, human health, well-being, poverty and

A definition of food security

Food security «exists when all people, at all times, have physical, social, and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life» (FAO, 1996, rev. 2009). It is based on the various pillars of access, availability, use, stability, acceptability, adequacy, and/or agency (Myers et al., 2004; FAO, 2006; RCSFS, 2012).

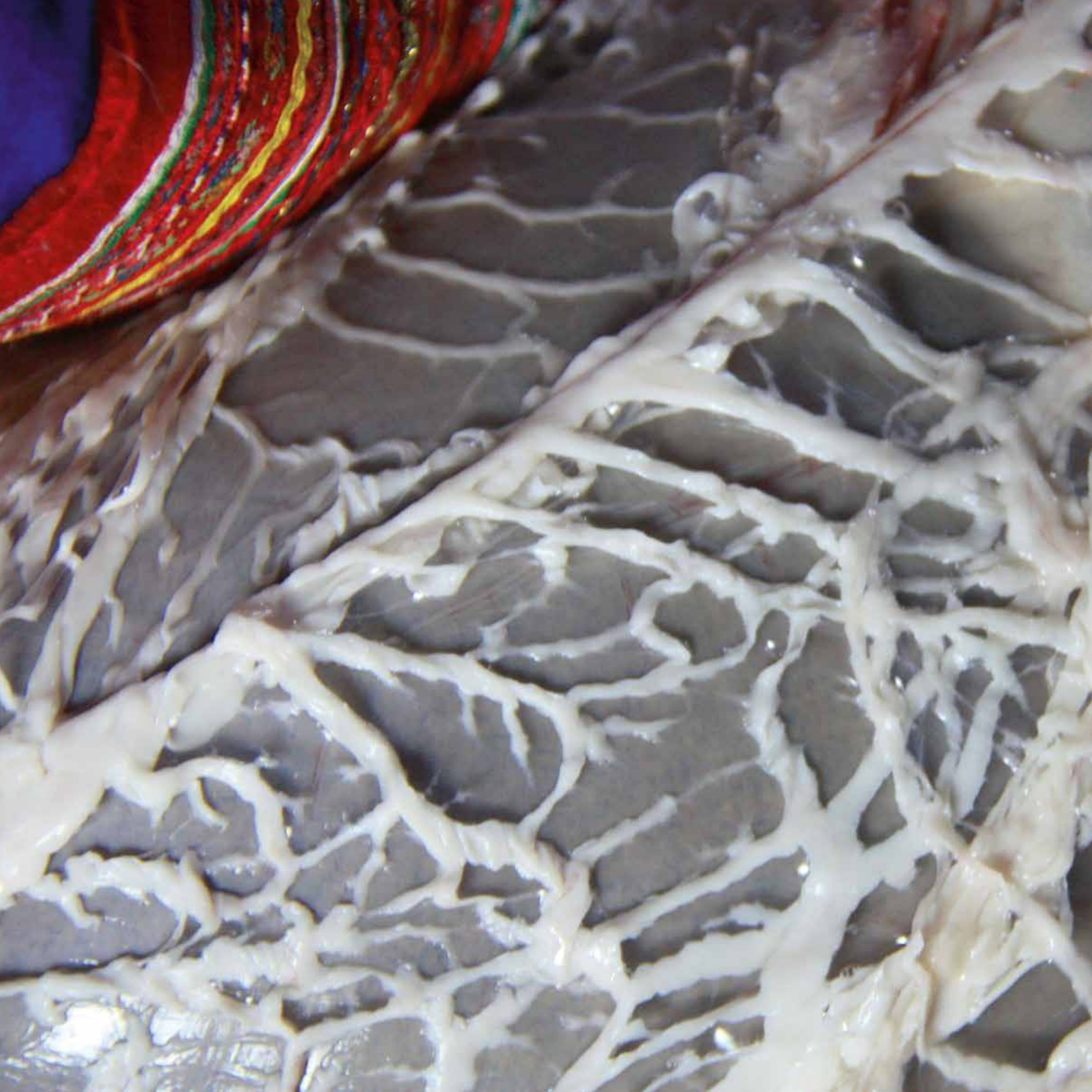
A definition of food sovereignty

Food sovereignty can be understood as the ability and the right of people «to define their own policies and strategies for sustainable production, distribution and consumption of food that guarantee the right to food for the entire population» (WFFS, 2001).

Figure 1: Definitions of Food Security and Food Sovereignty. Source: Council of Canadian Academies 2014: p xxv



Photo: ICR.



economic development, self-determination and education.

Against this backdrop, during the course of the EALLU project, we have seen it necessary to bring our own definition of food security for Arctic Indigenous Peoples: Our understanding of food security is that it must be based on Arctic Indigenous Peoples' equitable access and possibilities to select our own resources, food empowerment through the utilization of our own knowledge, the sustainable use of all resources in accordance with our traditional food systems, food safety regimes adapted to Arctic realities and Indigenous cultures, health and well-being, and local economic development and value-added from within our own societies. In short, a full and meaningful enactment of Arctic food sovereignty.

Throughout our multiple EALLU workshops and activities in classrooms, seminars and on the land, we heard again and again that the knowledge that underpins our Indigenous food systems is barely utilized for economic development. Arctic food governance systems often seem unable to incorporate traditional knowledge and the family-based nature of traditional livelihoods into its practice, thus hampering locally founded economic development.

By way of example, Sámi reindeer herders in Scandinavia have often heard that they are «backwards» and «stupid», «ruining the tenderloins of reindeer by boiling them» - as opposed to frying them in the style of western chefs, the perceived «correct» way of doing things. With this in mind, one might be tempted to reply by asking: Who knows by experience more about how to make reindeer taste

good: The 7 billion people on this planet that don't herd reindeer, or the 100 000 that do? And, why is it that one way is deemed «wrong» and the other is «right»? One argument is that you have to respond to what the market wants. And that is a sound argument from an economic point of view. But if we frame this another way, if people are not exposed to our culinary traditions and products in any way, how could one expect the market to demand such products by itself? The next question then, could be *who* should work to rectify this situation? And how can we do this in a way that also secures that the Indigenous primary producers are left with a fair share of values created? And further, how can we improve mechanisms to assist Indigenous youth bring their products to market? These are some of the challenges raised by the EALLU project.

As it turns out, revitalizing traditional products for modern markets could be a good way of generating local value added and businesses in the food sector (Reinert 1997). This is arguably what has happened with some of today's established culinary delights, like for example Parma and Serrano ham, Parmesan cheese, and Russian caviar. They are traditional small-scale handicraft food products, adapted to modern production and markets.

In parts of the Arctic, efforts have been made to bring Indigenous Peoples products into modern value chains. Such efforts are very important, though one should remain sensitive as to how this is done in practice. In terms of reindeer herding in Fennoscandia, for example, this has mainly happened through larger scale industrial models based on an agricultural design, and with standardized products, a preference for certain cuts, taste and distribution. These systems easily run counter to the self-governance intrinsic to traditional Sámi food



Photo: Anders Oskal



Photo: Anders Oskal

< The fat surrounding the stomach of a reindeer is extremely high in flavor and nutrition. Photo: Anders Oskal.



Talks and traditional foods at the table in Topolinoye, Republic of Sakha (Yakutia).
Photos: Svein D. Mathiesen

systems, which favors divergent products, tastes and techniques. Diversity has been found to be a central element in the general adaptation of Arctic Indigenous Peoples (Magga et al 2011). The «imposition» of an industrial food production system onto an Indigenous food production and distribution system certainly can make it difficult for small-scale Indigenous food entrepreneurs in the new economy to leverage the power of the market – i.e. a market that is increasingly eager to embrace healthy and exotic products from local producers. Centralization and «modernization» processes have had a disproportionate impact according to gender with a negative effect on the roles of women in reindeer herding and the value-added chain, which is so central to family-based reindeer husbandry (Degteva et al, 2017; Reinert 2007; Reinert 2008, Benjaminsen et al 2016).

«The main challenge in Sámi reindeer husbandry today is that a large part of the raw materials of the slaughtered reindeer such as skin, bones, heads, blood and intestines are regarded as waste and are thrown away and not used for food production or economic development. In this modernized processing of reindeer, I believe that as much as sixty percent of the reindeer is not utilized. The bulk slaughtering of calves in our industry has been a major threat to women's active participation in Sámi reindeer herding, since the raw materials that Sámi women traditionally used are no longer available, thereby forcing us away from the herding livelihood. If the traditional materials for clothes and food production are not available, the specialized language and traditional knowledge related to these processes will disappear. The calf slaughtering strategy imposed upon us as a reindeer herding people has so impacted women's roles and perspectives in reinde-

er husbandry, that this is having significant consequences for the continued survival of family based reindeer husbandry as we once knew it.»

Inger Anita Smuk, reindeer herder from eastern Finnmark, quoted in Degteva et al 2017.

Research in other parts of the Arctic have pointed to the need for a more holistic approach.

Relevant and effective responses to improve food security and food sovereignty must be holistic, enabled by local traditional knowledge, and paired with economic development strategies to tackle the closely connected issue of poverty. Long-term alleviation of food insecurity requires clarification of locally identified needs and drawing on the assets of distinct northern communities. Stable funding is also a key factor. All of these solutions require Northerners to establish program ownership.

Council of Canadian Academies 2014: vii

The food cultures of different Arctic Indigenous Peoples display striking similarities and differences. As a starting point, these Arctic food traditions are mostly based on *relatively simple production environments*, where people have made use of what was at hand to prepare their food. As an example, Nenets use the stomach of the reindeer to both store and preserve reindeer meat. Evenki and Even use intestines to prepare sausages, Even use stomachs in soups. Sámi use stomachs to boil meat in. Open fire and simple woodstoves are used, along with the often scarce additional resources and spices that nature could offer. There seems to be relatively few ingredients used at the same time in our traditional cuisine. Our ways of food preparation are mostly based on boiling or raw consumption, with less frying and grilling. While ingredients may be few in number, we



The fire must also be fed. Topolinoe, Republic of Sakha (Yakutia). Photo: ICR



Jon Mikkel Eira tends the cauldron, Sápmi /Norway. Photo: Kasper Fogh

would argue that the simplicity of our cooking methods allows for enhancing the complexities of the raw materials. There are also important aspects of Indigenous food systems that relate to food safety (see for example the Sámi practice of slaughtering reindeer, or the Nenets practice of food production and storage). As is well known, food preparation and production carries risks. There is the animal health to consider, practices for the safe consumption of raw meat, the practice of meat and fish «fermentation,» to control bacterial growth and multiple methods of harvesting and butchering, specifically adapted by peoples to their ecological niche. This field has been little studied.

There are some fascinating direct similarities of food cultures and understanding between different Indigenous Peoples. One such example is connected to the tip of the reindeer tongue. As it turns out, all Indigenous reindeer herding peoples and some of the Indigenous caribou hunting peoples have a similar tradition: *No one eats the tip of the tongue of the reindeer/caribou* (Gerasimova et al in preparation). There are various explanations as to why one should not eat it, and all seem connected to different subsequent negative behaviors by those who do. While the reasons behind this particular phenomena is now being investigated, it does illustrate commonalities across a huge Eurasian triangle, between the Sámi people in Fennoscandia, the Dukha people of Mongolia, and the Chukchi people of Chukotka, and then further into North-America.

A key value that runs throughout the Arctic Indigenous kitchen is the strong tradition to use everything: As far as the exploitation of Arctic food resources goes, Arctic Indigenous Peoples tend to see everything as a resource. We strive to utilize all that is usable for human food and the rest for other purposes. This is an impor-

tant common value among our peoples that is practiced even today. As far as we have been able to tell, none of the Arctic Indigenous Peoples have the term «sustainable development» in their original languages. Yet, their food cultures embody the very core concepts of sustainability by this common norm.

If we look at many of the dishes presented in this book, they speak volumes about the diversity not only in raw materials, but also in preparation techniques, conservation methods, flavor emphasis, and goals. Sámi dishes tend towards the completely cooked, and an avoidance of the raw. In Nenets cuisine, raw meat and blood is the central part of their food consumption, so much so, that authors here call it the «anti stress» diet. Many Indigenous Peoples across Eurasia eat frozen raw fish as a delicacy. In the Sámi area, fish is fried or cooked on the fire. There are regional differences too. Natural conditions may even be a reason why there are differences within the same group. For example North Sámi like to dry reindeer meat, whereas Southern Sámi tend to smoke it and then dry it. There are many practical explanations for different regional practices that include access to firewood, the presence of permafrost, and the need for Vitamin C (where reindeer blood is a significant source of vitamins and minerals). There is also different knowledge depending on different usage of the same resources. One such example is the Nenets versus the Sámi way of killing a reindeer as described in Chapter 2 and 3), where one determinant is the end use of the meat (raw versus boiled).

WHAT 'LESSONS' DOES EALLU HAVE FOR ARCTIC INDIGENOUS SOCIETIES?

Arctic change means both challenges and opportunities. Indigenous communities however often find themselves at a disadvantage.



Photos: Kasper Fogh



The negative impacts of e.g. cumulative land use change and socio-economic conditions often ‘overshadow’ possibilities of positive local development, in terms of the communities’ capacity to be proactive and take the lead for local actions. Food insecurity is another challenging dimension on top of this. New approaches for adaptation and resilience to Arctic change in Indigenous communities are thus needed.

This is where we believe that food culture can serve as a fundament for our own economic and societal development, on our own terms. *We believe indigenous food culture and the practice of food sovereignty in the Arctic is a means by which the possibilities of an economic and societal development based on our own resources, knowledge, and collective strength can be fulfilled.* It holds the potential to provide us opportunities to engage in economic activities that maintain our own cultures, that keeps our youth on our lands, and that builds our societies from within. Seen from this perspective, it can offer more than just the «menial jobs at the local mine», as one young project participant phrased it.



A key goal of EALLU is to work with food culture in ways that inspire, consolidate and build the pride of our Indigenous youth in their own heritage and traditional knowledge. As we seek to build not only their competence but also their confidence to be leaders of their own societies in the future, the EALLU project is co-managed by youth themselves as a capacity-building initiative.

Another key aspect of our work is the very valuable and energizing experience of our youth as they exchange views, understanding, values and experience with Indigenous youth from other regions of the Arctic, both visiting and

hosting others in a two-way exchange. As with the EALLIN project (www.eallin.org), what we strive for is our youth to see themselves in a new light from this international exposure: We wish for them to see their food resources and culinary traditions in new ways, so as to *inspire them to raise entirely new questions and seek to answer them*. We wish to inspire our youth for action.

The intergenerational aspect of food production is a critical piece of this puzzle. Indigenous food preparation, processing and production techniques include all members of the family, across gender and generations. The consequences of a move away from traditional foods have been severe for community and individual health and the resulting *food insecurity* is linked to poor dietary quality, under-nutrition, obesity, chronic diseases, poor educational outcomes, and family stress. A relatively rapid shift away from traditional foods towards carbohydrates and saturated fats (e.g. instant noodles and bread) is projected to increase the prevalence of chronic diseases such as obesity, diabetes and heart disease. This is a serious public health issue in many Arctic communities (Egeland et al., 2011; Council of Canadian Academies 2014). Food security has also been highlighted by the Arctic Council (e.g. the Nuuk Declaration 2011), as well as by Indigenous Peoples’ organizations (e.g.: ICC Kitigaaryuit Declaration 2014). Food security is very much linked with human security in the Arctic.

ECONOMIC PERSPECTIVES

Arctic Indigenous Peoples’ traditional food products seem to be well aligned to current food trends regionally and globally: It represents clean, natural food, that is local, ethnic, healthy, different, genuine, small-scale, roots oriented, and so on. A focus on food culture



Photos: Kasper Fogh

represents a *diversification of local economic structures*, through the primary food producing, through food processing and distribution. It also links well with the tourism sector, where food can be considered an integral part of customer's travel experiences, and local food can thus be important for a differentiation of products and services.

On the micro economic level, the use of Indigenous traditional knowledge can be seen as a means to differentiate products and a potential source for innovation and lasting competitive advantage.

In fact, the rich food cultures, culinary traditions and traditional knowledge of Arctic Indigenous Peoples really represents a *repository of food innovations from time immemorial*: Through a close dependency on and observations of Arctic nature, our peoples have over generations, centuries and millennia developed the very best flavors, healthy and sustainable products that our Arctic landscapes, lakes, rivers and oceans can provide. These products have up until today largely existed only within our cultures and living areas. Yet, we would argue that they still hold a great potential for culinary discovery for the rest of the Arctic and the world.

Innovation is also to combine known things in new ways. A potential exists in revitalizing our

known traditional products, and presenting them for new markets. There is also potential for combining known dishes, preparation, conservation and serving methods. As one example, participating Indigenous youth worked to create an entirely new dish by combining Sámi dark-blood-pancakes with Evenki light-blood-sausages: *Light-blood-pancakes* – real Arctic product innovation in the making!

EPILOGUE

We need sustainable development based on the living resources of the Arctic.

But what does «sustainable development» mean to us as Indigenous Peoples, within the context of our work on food? Apart from defining the core question «sustainable to who?» What do we mean by the term sustainable development? Real sustainability to us means a way to develop our own societies *on our own terms that builds on our traditional knowledge and our people*. It means a development that is anchored *within our societies*, initiated and driven from *within our cultures*. It means a development that *builds on our own* traditions, our own cultures, and our own worldviews, and that - with this as the foundation - brings our societies into the future. Our recipe for true sustainable development is very simple, yet not necessarily easy to achieve: *To use our own knowledge to develop our own societies!*



Photos: Kasper Fogh



Smoke, Fire and Ventilation. Inside a Sámi lávvu. Photo: Kå Krarup Hansen

RECOMMENDATIONS TO THE ARCTIC COUNCIL

Based on the implementation of the EALLU project in 2015-2016, we are:

Noting the range of ongoing profound changes in the Arctic not witnessed before in the long histories of Arctic Indigenous Peoples,

Recognizing that economic freedom of Indigenous societies is a key foundation for their adaptation to Arctic change, and that any civilization is dependent on using the knowledge of its people to build its own societies,

Recognizing that climate change is also about what we are going to eat in the future,

Recognizing that the rich understanding and knowledge-base Arctic Indigenous Peoples food has not been fully utilized for innovation and local economic development, and that it thus represents an untapped resource for Indigenous Peoples' societies' self sufficiency, prosperity and adaptation to Arctic change, and underline the key importance of Indigenous languages and traditional knowledge.

Underlining the need for food security for Arctic Indigenous Peoples based on their equitable access to and possibility to select their own resources, food empowerment through utilization of their Traditional Knowledge, sustainable use of all resources in accordance with

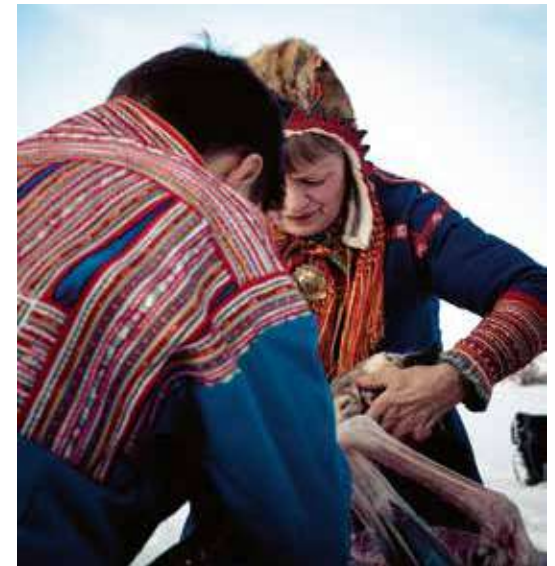
their traditional food systems, food safety regimes adapted to Arctic realities and Indigenous cultures, focus on health and well-being, and local economic development and value-added from within their own societies,

Noting that our human and natural resources have the capacity to enable Indigenous Peoples to become more food sovereign and food secure, and support development of mechanisms and technology to back up and encourage this,

Noting the need for more research, education and monitoring of traditional food availability, access, utilization, sustainability and health for Arctic Indigenous Peoples,

Underlining that Arctic food governance, as well as marketing and supply chains, must be adjusted to better accommodate Indigenous traditional knowledge, family-based reindeer herding and other traditional Indigenous livelihoods, and Indigenous Peoples' local economies,

Recognizing the need for special efforts to realize that Arctic Indigenous Peoples and societies are in position and able to utilize arising opportunities from Arctic change, on their own terms, based on their own needs, their own resources, knowledge base and people, so that the opportunities of our changing Arctic can be real opportunities for all.



Photos: Kasper Fogh

The participating Arctic indigenous youth and project management of SDWG EALLU therefore make the following Recommendations to the Arctic Council:

1. Encourage the Arctic Council through its relevant Working Groups to maintain a clear focus on Arctic indigenous food cultures and systems, and support activities on Arctic indigenous food systems, youth, food security, nutrition, health, economy and well-being.
2. Encourage further development of indigenous trans boundary knowledge networks to bridge the gaps between society and academia, between academia and business, and between science and traditional knowledge, focusing on Arctic indigenous peoples food culture, food sovereignty, food security and business development, and invite Arctic Council Members and Observers to contribute to this including UArctic, IASC and IASSA.
3. Encourage the establishment of an international multidisciplinary program for training of indigenous youth in food TK documentation, food entrepreneurship and innovation, based on the EALLU project, as a follow up of point # 20 of the Iqaluit Declaration from 2015.
4. Support in general that Permanent Participants themselves and Observers with the support of at least one Arctic State continue to initiate, plan and implement Arctic Council projects of relevance to their local societies in a rapidly changing Arctic, to secure both local engagement and capacity building.

The participating Arctic Indigenous youth of EALLU therefore also identify the following additional opportunities and options for consideration:

1. Support a separate follow-up EALLU task to further investigate the possibilities for utilization of the Northern Sea Route and new slaughterhouse processing technologies for improving the economic base of Arctic indigenous peoples', in close cooperation with Association of World Reindeer Herders, Permanent Participants and Member States. Sakha Republic (Yakutia) in Russia will function as a pilot region.
2. Support establishment of Arctic standards of indigenous food production, based on food security and safety, but adjusted to Arctic indigenous cultures, food practices and traditional knowledge, as well as our Arctic food production realities.
3. Encourage development of a new branding system for Arctic indigenous peoples' products including fair trade and food specialties.
4. Acknowledge the importance of the economic freedom and economic basis of Arctic indigenous peoples' traditional livelihoods, and encourage their access to and ownership of the most profitable activities in the value chain.
5. Consistent with national laws, suggest that free trade of indigenous foods and products between indigenous peoples' business enterprises be investigated in order to spur in situ Arctic development that could be part of future Arctic agreements on economic cooperation.
6. Invite the Arctic Economic Council (AEC) to prioritize stimulating indigenous peoples' businesses, including traditional indigenous livelihoods and food, to build on the Arctic region's strengths, its peoples and its knowledge base.



EALLU: Using our knowledge to develop our societies through food culture, food security and food sovereignty.

Photo: Olesya Yakovleva



EALLU Yakutsk. Republic of Sakha (Yakutia)
Pic: Victor Zabolotskiy



EALLU Yakutsk. Pic: Victor Zabolotskiy



EALLU Yakutsk. Pic: Victor Zabolotskiy



EALLU Copenhagen. Pic: Mikkel Anders Kemi



EALLU Nome, Alaska. Pic: ICR



EALLU Salekhard. Yamal Nenets AO. Pic: Svein D. Mathiesen



EALLU Moscow. Pic: Svein D. Mathiesen



EALLU Moscow. Pic: Svein D. Mathiesen



EALLU Nome, Alaska. Pic: Anders Oskal



EALLU Moscow. Pic: Svein D. Mathiesen



EALLU Moscow. Pic: Svein D. Mathiesen



EALLU Moscow.
Pic: Svein D. Mathiesen.



EALLU Moscow. Pic: Svein D. Mathiesen



EALLU Khatystyr, Republic of Sakha (Yakutia). Pic: Svein D. Mathiesen



EALLU Guovdageaidnu. Pic: Kasper Fogh



EALLU Yakutsk, Republic of Sakha (Yakutia).
Pic: Svein D. Mathiesen.



EALLU Guovdageaidnu. Pic: Svein D. Mathiesen



EALLU Guovdageaidnu. Pic: Svein D. Mathiesen



EALLU Guovdageaidnu. Pic: Svein D. Mathiesen



EALLU Inuvik, Canada. Pic: Mikkel Anders Kemi.



EALLU Guovdageaidnu. Pic: ICR



EALLU Guovdageaidnu. Pic: Mikkel Anders Kemi



EALLU Guovdageaidnu. Pic: Svein D. Mathiesen



EALLU Yakutsk. Pic: Victor Zabolotskiy



EALLU Copenhagen.
Pic: Mikkel Anders Kemi



EALLU Guovdageaidnu. Pic: Svein D. Mathiesen



EALLU Cherski, Republic of Sakha (Yakutia).
Pic: Mikkel Anders Kemi.



EALLU Cherski. Pic: Mikkel Anders Kemi.



EALLU Archangelsk, Russia.
Pic: Svein D. Mathiesen.



EALLU Archangelsk. Pic: Svein D. Mathiesen



Photo: Kasper Fogh

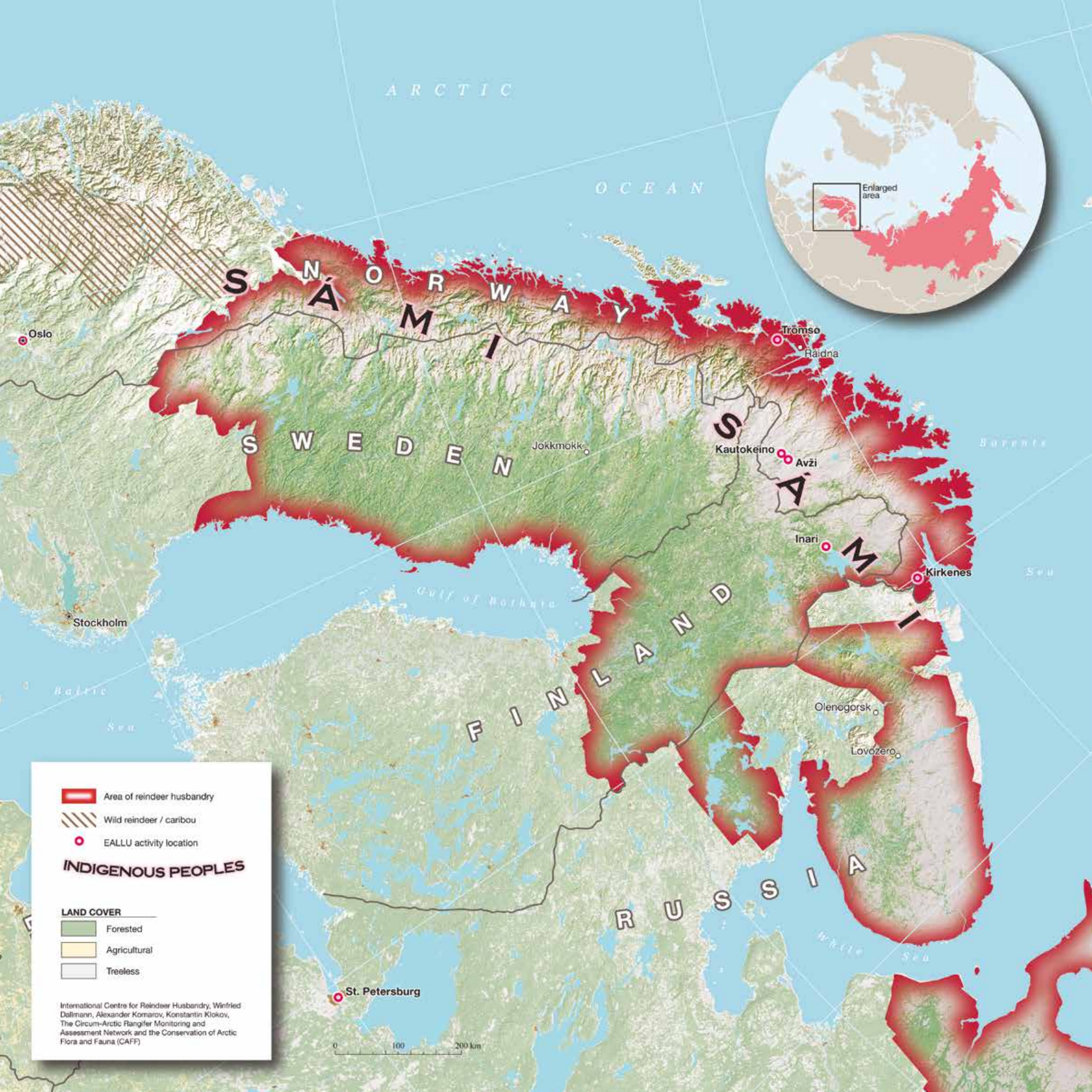
A painting of a Sámi person, likely a woman, sitting inside a traditional tent. She is wearing a red and white striped garment. A fire is burning in a hearth in the foreground, casting a warm, orange glow. The background shows the interior of the tent with wooden poles and a hanging rope.

SÁMI: SMOKED & COOKED

BY MÁRET RÁVDNÁ BULJO, ANDREI DUBOVTSEV, RÁVDNÁ BIRET MÁRJÁ EIRA SARA,
INGER MARIE GAUP EIRA, OLGA FEFELOVA, KIA KRARUP HANSEN, ALEXANDER KRASAVIN,
INGER ANITA SMUK, ISSÁT TURI, AND ASTRID RIDDERVOLD

«...How happy is the life of the Lapps, hidden for the world in their
blessed wilderness...Your beverage is crystal-clear water [...]. Your
food is in springtime fresh fish, in summer soured reindeer milk, in
autumn ptarmigan and other wild fowls, in winter fresh reindeer
meat without salt or bread [...]. You eat in peace after rising or before
going to bed and you have no knowledge about our poisons hidden
in sugar and honey.»

Carl von Linné, Flora Laponica, 1737



Sámi live across four nation states (Norway, Finland, Sweden and Russia) and although their territories have been altered irrevocably in the last century, wherever they live, the rhythm of life for the reindeer herders, hunters and gatherers of Sápmi remains largely unchanged. Sámi remain largely connected to the seasons, the lifecycle of the reindeer and the plants and animals and fish upon which their Indigenous food systems are built. Reindeer are a totemic species for the Sámi and the herding, slaughtering, preparation and consuming of reindeer meat, along with a widespread consumption of lake and ocean fish are major ingredients of Sámi cuisine in all countries in which they live.

HOW TO SLAUGHTER A REINDEER USING TRADITIONAL SÁMI KNOWLEDGE

by Issát Turi

Slaughtering a reindeer in the traditional way means doing it in such a way that you can make use of the whole animal: for food, clothing, medicinal purposes and the many other things you can derive from the animal. When thinking traditionally, multiple decisions need to be made when choosing a reindeer to slaughter. You need to look at the animals' gender, age and even fur color. These varied and complex decisions are underpinned by the need to maintain a diverse and strong herd, in case of harsh winter conditions. A diverse herd will be more resilient and give us herders more flexibility when dealing with unexpected climate events.

Preserving meat

The traditional way of slaughtering is also a matter of food safety. When you slaughter out in the tundra then you need to know what steps to take to avoid the growth of unwanted bacteria.

Traditionally we have started with what we call *giehtadit*, which is to kill the animal with a knife right into the heart. This way, the reindeer will bleed out from inside the chest cavity after which we let the reindeer *baggat*, which means we let it rest and 'inflate' itself. The amount of time you let the reindeer *baggat* depends on the season, the weather and the temperature before you start to skin it. The Sámi concept of *baggan* is both about food safety and flavor enhancement. *Baggan* makes the meat tender and juicy. This also has the effect of loosening the skin so you are not touching the meat so much during the slaughter. This is 'on the land' food safety where the traditional way of slaughtering may be the best way.

Only after you have let the reindeer *baggat*, do you start to skin the reindeer. The traditional way of skinning a reindeer is doing it in such a way that you can make use of the whole hide. Then you can also use the legs and skin of the head for clothing. However, there are important seasonal differences. You slaughter calves in late July or early August for *beaskanáhkki* and then you use the whole skin to sew the traditional winter garment, which is called *beaska*. When you need a warmer *beaska* - such as when you need to watch over your herd during winter nights - then you slaughter later in the autumn, when the hair of the reindeer has grown longer.

After you have skinned the reindeer you take out the intestines with which you make your blood sausages and then you open the chest cavity where the blood has already coagulated and has already separated. This will give you the best blood for *márffit* (blood sausages) or *guhparat* (meat balls made with blood). After that, you cut the meat up in a way that is not only the best way of preserving the meat but also a way in which you get the most out of the reindeer, in terms of food.



Photo: Kasper Fogh



Issát Turi slaughtering a reindeer in the traditional way. Photos: Andreas Ausland.

Sámi cuisine does not take shape in the 'kitchen', but really starts at the moment when and where the reindeer is slaughtered, the condition of the reindeer in the days and weeks before it was slaughtered and finally how it was killed.

Mális is another important part of Sámi food culture and *mális* means to cook the meat with just water and salt. Then the quality of the meat is very important, as the reindeer must be fat. Because reindeer meat is not marbled, this means that the more fat it has on the outside, the higher the quality of the meat is. Meat quality is also determined by how you kill the animal.

SUOVASTUHTTIT: USING SMOKE TO PRESERVE REINDEER MEAT

by Rávdná Biret Márjá Eira Sara, Inger Marie Gaup Eira, Kia Krarup Hansen, Inger Anita Smuk, Issát Turi, and Astrid Riddervold

Sámi reindeer herder's traditional knowledge about meat security and meat conservation is rich and deep. These are technologies developed over millennia, which secure the sustainable and safe use of animals for food production. The renowned Norwegian philologist Konrad Nielsen who compiled the exhaustive Sámi language dictionaries in the late 1920s and 30s refers to *suovas* as the smoke fire - the fire that gives smoke for smoking, explaining the characteristics of the fire. *Suovasbiergu* means «smoked meat», while *suovastuhttit* is the Sámi term for the technique or practice of smoking meat and fish. *Suovastuhttit* is little documented, but is in daily use in reindeer herding communities across Sápmi.

Reindeer herder's knowledge of smoking meat integrates the understanding of selecting the right type of animals for slaughtering, at the right season of the year and using specific parts

of the reindeer. Further knowledge includes; the correct use of salt and moisture generated from selecting specific plants and firewood. This produces a specific and dense white smoke, which penetrates the meat tissue without the use of too high temperatures. The type of plants used and how long the smoking takes place (from 3-6 hours), determines the degree of conservation and taste. A lack of traditional knowledge about the process of *suovastuhttit* might affect human health and wellbeing. The combined antibacterial effects of the components of salt and smoke protect the meat from degradation. Even today with modern deep freeze technologies, *suovas-tuhttit* is still practiced and the characteristic flavour of *suovasbiergu* is preferred in many Sámi households.



Photos: Kia Krarup Hansen

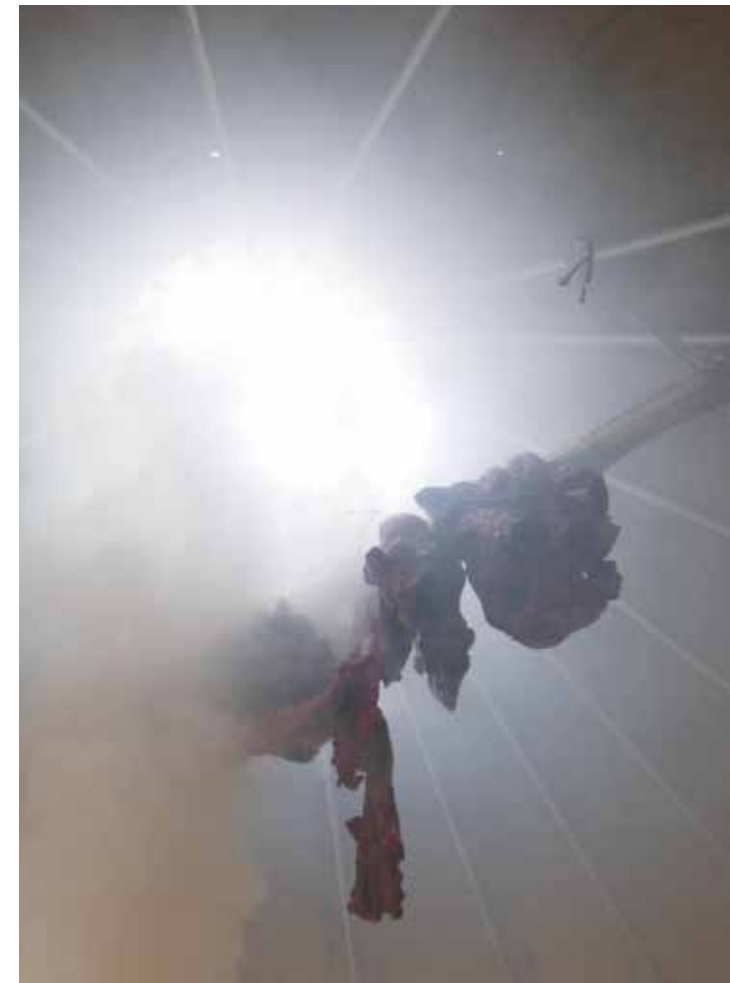




Photo: Svein D. Mathiesen

GOASTEBUOIDI: Sámi reindeer herders taste enhancer

by Máret Rávdná Buljo, Issát Turi and Inger Anita Smuk

Traditionally, fat for frying fish and reindeer meat has been derived from ruminal mesenteric fat (*leavssus*) collected from slaughtered reindeer, which is stored inside the reticulum (*čálmmas*), or simply as a slightly salted fat, which is dried and stored until rancid. Rancid fat can be stored for up to a year, and has been added to different dishes to give it flavor and to enhance the unique tastes of Sámi cuisine.

HOW TO MAKE A FAMILY MEAL – SÁMI FOOD KNOWLEDGE AND TRADITIONS

by Máret Rávdná Buljo

The Sámi ‘family meal’ is not only the center of a family coming and sharing food together. In fact, as described here, it’s not a ‘meal’ as might be understood by many, where people sit down at a certain time each day and have dinner. Life with reindeer means movement, especially in Spring and Autumn. Someone is always with the reindeer. Sometimes the whole family can be with the reindeer. Living with reindeer means your life is lived according to the rhythm of the animals. So, to describe a ‘family meal’, is really a description of the collective journey of reindeer, people and food.

The family meal starts with choosing a reindeer to slaughter, how it is slaughtered, how it is processed and deciding who gets to eat which specific part of the animal. The family meal, is also a means by which important knowledge is transferred across generations about animals, health and food safety, based on the raw materials available. Creating the family meal requires a considerable amount of knowledge

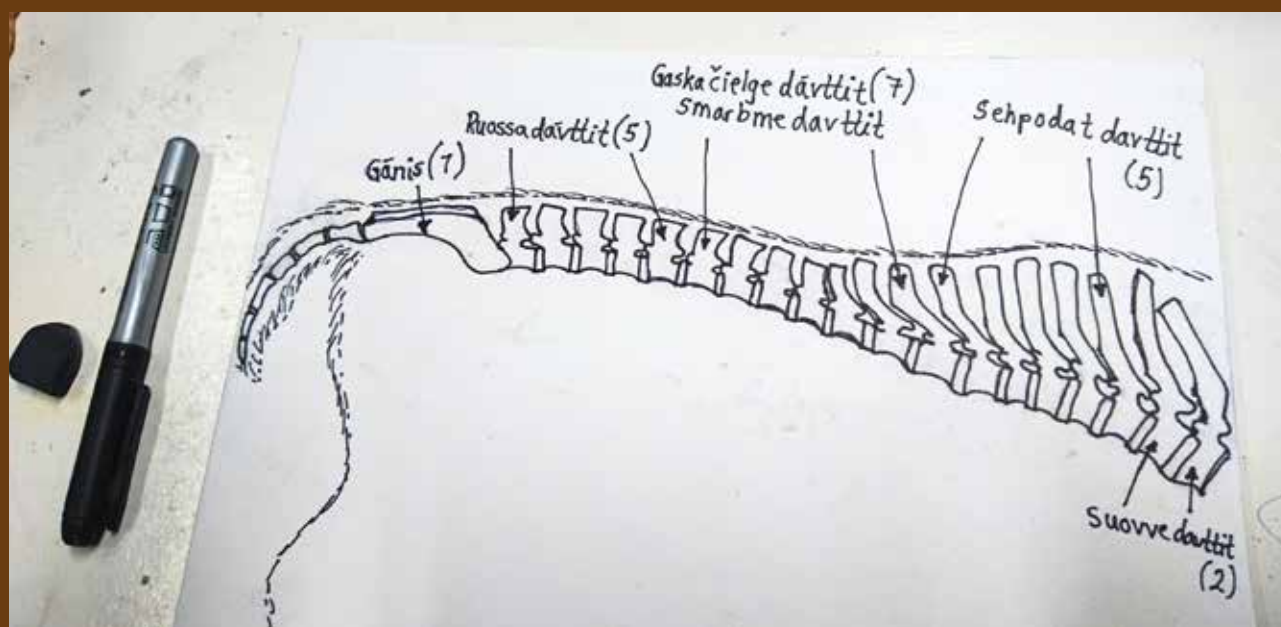
and time and involves many family members. Making it takes time. The meal might not be ready at the same time every day, but there is so much to be done and many people are needed to do it. During this time of preparation, stories are told, knowledge is shared and children learn the useful life skills of work and self-sufficiency. During preparation time guests may appear unannounced. They are to be made welcome, and they too shall find food and warmth. A ‘family meal’ is really about the coming and going of family life, and this is not possible to create or recreate in a modern industrial slaughterhouse.

I grew up in Guovdageaidnu in a reindeer herding family in a village where most people are Sámi, speak Sámi and have some direct or indirect connection to reindeer husbandry. I now live on the coast of Norway and herding and the preparation and eating of reindeer products remains at the heart of our daily life.

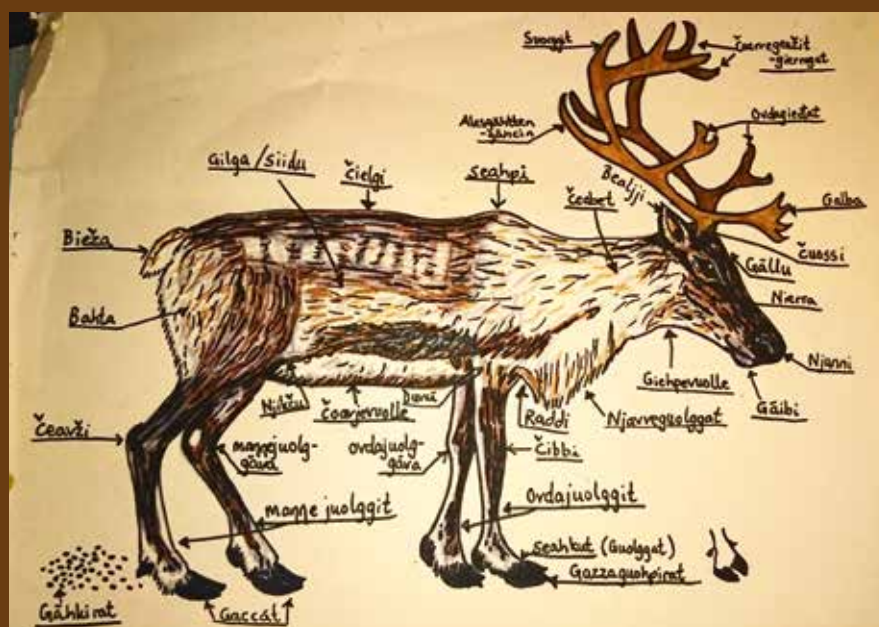
When we make a ‘family meal’, although we never called it that, there are many steps and observances along the way to making it, codes of etiquette that need to be observed. I learned



All Photos: Andreas Ausland



Máret Rávdná Buljo prepares a family meal of blood, sausage, intestines, stomach and cuts from the spine. Photos: Andreas Ausland. Line drawing by Máret Rávdná Buljo.



Máret Rávdná Buljo prepares a family meal of blood, sausage, intestines, stomach and cuts from the spine. Photos: Andreas Ausland. Line drawing by Máret Rávdná Buljo.

them from my immediate and extended family and now teach them to my own children. The preparations and observances start with the slaughter of the reindeer. After slaughtering a reindeer, the spine is the first part that is used to make a family meal, and for reindeer herders it is the best meat. It is regarded as almost holy. The spine is taken immediately after slaughtering and is usually cut up in joints and put into a pot for boiling.

The large dorsal sinew (*sávvosuotna*) is removed when the carcass is still whole. This sinew is very good for sewing a coat made of reindeer fur or making nice handicrafts with small and neat stitches.

Our family tradition is that certain parts of the spine are designated for different family members. The tail (*bieža*) is for the butcher, the sacrum (*gánis*) is for the person who took care of the intestines (usually the mother or a female person). The vertebrae (*ruossadávttit*) are for the father and the other adults, and the vertebrae in the middle (*gaskačielgedávttit*) are for the youth. The vertebrae on the spine shoulder (*sehpodatdávttit*) are for smaller children because it is easy for a child to hold the bone.

Kidneys (*moninčalmmit*), spleen (*dávdi*), blood sausages (*márffit*) and small intestines (*sáhp-pasat*) are boiled together with the spine. The broth acquires the varying taste of these different parts. Importantly, these parts replace vegetables with regards to vitamins.

We drink the broth and dip the meat in it. The fat layer on the top of the broth is skimmed off, to be used as a separate dip. Spine and broth are a natural medicine for treating a wide variety of different sicknesses and spine broth is seen as the most valuable broth from a reindeer.

Fresh reindeer meat does not need to be boiled for more than 20 minutes for it to become tender. If boiled for longer, the meat becomes hard, and then you have to boil the meat for at least another hour until it becomes tender again.

The spleen is very good food for young babies, being good ‘food training’ and is easy for a baby to suck.

Blood sausages and small intestines are also a part of the family meal. These should be shared so that every family member gets a piece of the different tasting blood sausages. Also small in-



All Photos: Andreas Ausland

SÁMI DIIDDAT – SÁMI CODES OF ETIQUETTE RELATED TO FOOD

When you have decided which reindeer to slaughter before lassoing it, you must not say out loud what you are thinking, you must just think it. As you are living in nature, you learn that everything in nature has an understanding. You should not speak out loud that which you intend to do. You should just do it. In this way, the reindeer do not hear, nor have time to run away.

Traditionally it was thought that a reindeer should not die by a lasso around its neck before being stabbed in the heart. You should quickly remove the *lávži* (rope made of reindeer skin) before the reindeer draws its last breath. In this way, you honor the reindeer. When the reindeer is dead, you should mark a cross in the antlers axis to honor and give gratitude to the reindeer so that you will be able to continue to work with reindeer.

It is not good practice or hygienic to work with food at the entrance of a tent. When slaughtering outside or near the goahti (tent), you should always slaughter outside the innermost part (*boaššu*). Otherwise you will bring bad luck upon your family. The meat should be taken into the tent where the tent cloths overlap, so luck and good fortune will follow you into the tent.

When making a meal of reindeer meat and the meat is boiling, skim off the foam, and empty the ladle on the innermost part in the tent near the fireplace or you give the skimmed foam to your own dog. You should drink the first ladle with bouillon yourself so that luck and good fortune stays in your own tent.

«The crow always sticks out its tongue first» (It is very bad behavior to take the tongue to himself/herself and not share with others. For this, you will be compared to a crow).

The person who eats the reindeer nose will be very popular (among members of the opposite sex).

If you eat the tip of the tongue, you will become a liar.

If an unmarried girl eats the chin of a reindeer, then the groom and his companions will turn back home, at *Gáibenjárga* (chin cape), and the girl will never get married.

The eye bone should always be broken into two to avoid *guoržžu* (one with the evil eye) looking through it. You should also break the marrowbones and split the trachea.

Always chop the patella (kneecap) to avoid the bones getting stuck between a dog's teeth or risk choking the dog, and prevent the dog's intestines becoming blocked.

It is said that the person, who cleans the bones by eating everything on them, will have a big *lávvu*. Those who do not will have a small *lávvu*. Meat nearest the bone is the richest meat and there is a saying that a thief does not clean the bones.

During food preparations, if you find a globule (*čođgi*) of fat, water, milk, hair or flour, it will bring you luck. Likewise, a water globule in the skin should be burned to avoid hunger and a fat globule will give you fat reindeer. A globule of hair will give you a big herd, while a globule of milk will give you female reindeer rich with milk. A globule of flour will mean an abundance of food. And when a dried globule makes a ringing sound, then some money will come your way.

testines should be shared. This has been done from ancient times and was a way to ensure that everyone got all the vitamins and minerals from the food eaten by the reindeer.

The names of the blood sausages are: *Čeaksa* (omasum), *doggi* (abomasum), *maŋnebuoidi* (rectum), *gahpárus* (duodenum), *guopmolággá* (appendix), *čálmmás* (reticulum), *seakkaguopmolággá* (the thinner/smaller part of appendix) and *čálmmásnjálbmi* (opening of the reticulum).

Also according to our practice, the upper marrowbones (*čuožžemas*) of the back legs were for father, the lower marrowbones of the back legs (*njiehcehas*) were for mother, the lower marrowbones of the front legs (*vuorgu*) were for the smallest children and the upper marrowbones of the front legs (*dábbá*) were for the older children in the family. According to this way, every member of the family got the pieces of the animal that gave them the most necessary nutrients.

Not all families are alike of course and traditions and customs vary from region to region, from *siida* to *siida*. In some families I have heard that blood sausages made from the omasum are for males only. These stories, traditions and etiquette have much to teach us about a healthy relationship between people, animals and food.



Reindeer round up in Lovozero, Kola Peninsula, Russia. Photo: Chris Schmetz

KOLA SÁMI – REINDEER KHOLODETS

by Alexander Krasavin, Olga Fefelova & Andrei Duboutsev

Kola Sámi food culture has been subject to intense modifications due to the influences of long term cultural and economic contacts with surrounding peoples – Russians, Norwegians, Finns, Komi and others. Kola Sámi have purchased and traded with Russians for rye flour for well over a century usually baking lenten rye flatbreads with it. In the 1920s Kola Sámi began eating vegetables, especially potatoes and onions. Until recently many Sámi did not pick mushrooms, which are very abundant in Lapland. Nevertheless, berries – crowberry, cowberry, bilberry and cloudberry – are picked with enthusiasm and eaten dried or soaked, and also used as seasoning (in soup and other dishes).



For millennia the Kola Sámi diet consisted of meat (in winter) and fish (in summer). In the past, when hunting played a more significant role, wild reindeer meat was also consumed. Reindeer husbandry became the main source of meat for the Kola Sámi by the end of the 1800s, as hunting had already reduced game stocks. Reindeer meat was boiled, sun-dried, frozen and less often – salted. Among the Kola Sámi, there is almost no evidence of raw meat eating. As early as the 16thC it was recorded that Sámi had acquired the habit of boiling food and that even by that time already preferred fried meat to raw. By the late 19th and early 20thC, reindeer meat was usually served as a soup seasoned with rye flour, salt and ground berries (crowberries and cloudberries). People ate the meat first and then drank the remaining broth.

However, for centuries Kola Sámi have consumed raw *frozen* meat, slicing it finely for eating. This is called *stroganina*, and is a well-known dish among many northern peoples. While Sámi in what we today call the Nordic countries widely used reindeer milk to make cheese, Kola Sámi do not appear to have milked their reindeer to any large extent. In addition to reindeer meat and fish, in winter Kola Sámi ate poultry, mainly grouse, which they usually boiled in soup and sometimes fried.

All parts of reindeer were consumed, except the lungs, which were given to the dogs. Kidneys, slightly seasoned with salt, were put on a stone in front of the fireplace and thus cooked. Liver was used for frying. Brains, heart, tongue, stomach and brisket were considered special delicacies. Sámi also liked fresh reindeer blood, which they drank for its medicinal purposes.

A much loved dish is reindeer *kholodets*. To prepare *kholodets* with reindeer tongues, reindeer hooves and tongues are needed. Clean the



Photos: Chris Schmetz

reindeer hooves thoroughly, and place in cold water for a day. Change the water after 6 hours. Place the soaked hooves in a casserole and cover with water, add meat and bring to the boil. Then decrease the temperature and cook on a low heat for 8 hours. For the preparation of dishes with reindeer tongue, it is important to soak it in cold water for several hours. Then the broth will be light and clean. 1.5 hours prior to the end of cooking, add a reindeer tongue, then (over the last 20 minutes) add peppercorns and a bay leaf, and/or some vegetables and season with salt according to your taste. Take everything out of the casserole. Detach the meat from the bones and if applicable cool the tongue and peel the skin. Serve in bowls, adding garlic and cover with meat broth. Let the dish jellify and serve.

Nowadays, *kholodets* is cooked with a wide range of ingredients. For the meat part of *kholodets* people use beef, veal, pork, poultry. Any variety of vegetables (carrots, onions, garlic, celery), herbs and spices are also used. However, the most important part of meat *kholodets* remain the trotters or hooves, pork or beef ears and heads. These special ingredients allow the cooking of *kholodets* without adding gelatin. *Kholodets* prepared with gelatin becomes «*zalive*», which is a completely different dish.

Reindeer kholodets

- Reindeer tongue 0.5 kg, or other meat such as reindeer cheeks
- Reindeer hooves – 1kg
- 1 onion
- Salt
- Root vegetables, garlic if wished



Reindeer round up in Lovozero. Photo: Chris Schmetz

BOHCCO NJUOLAT – REINDEER ARROWS

A long time ago, when all the animals were living in peace and harmony with one another, and there was not an enemy among them, a small frog was jumping around.

Suddenly this little frog found some strange tools, and for the life of him, could not understand what they were. Bear ambled over and explained that it was a bow and arrow that could be used to kill other animals. Bear went on to explain to the others that they should to kill a reindeer because it ran so beautifully and seemed so proud. Bear decided that Mouse should have the first arrow, Wolf the second and himself the third. Mouse shot the arrow and hit the reindeer between the hooves of a reindeer back leg. Today you find a small flap of skin, which in Sámi is called *sáhpánnjuolla*, the Mouse Arrow.

Wolf shot the next arrow and it hit the reindeer's thigh muscle. Next time you look, you will find a 10 cm long bone that looks like a needle in the reindeer thigh. In the Sámi language, this is called *gumpenjuolla*, the Wolf's Arrow.

Finally, it was Bears turn and he shot the third arrow, which hit the reindeer in the forehead. It did not kill the reindeer, but still today, when you remove the skin from a reindeer's head, there is a mark in the forehead. This is called *guovžanjuolla*, the Bear's Arrow.

Frog, who had been ignored and had not been given any arrow, was watching all this time, as the other animals tried to hunt the reindeer. When the reindeer went to the lake to drink water, the frog followed, collected spit and spat with his lightening tongue at the reindeer. His spit was so fast and hard that it became an arrow and it hit the reindeer in the heart. You can find a small bone in the reindeer's heart called *cuopponjuolla*, the Frog's Arrow.

The moral of the story is that a tongue can be used to speak many languages, taste if food is hot or cold, salty or sour. But it can also be used for an evil so strong that it can kill.

APPENDICES

Notes on the Authors

Adams, Eilene (Iñupiat). Eilene is Iñupiat from Barrow, Alaska. Eilene has learned Indigenous Knowledge from her families and communities all her life. Today, her family continues to collect, process and consume their traditional foods.

Antipina, Elena. Director of the Arctic College of the Peoples of the North, Chersky, in the Nizhnekolymsky District on the Kolyma River of the Republic of Sakha (Yakutia), Russia.

Avelova, Svetlana (Evenki) Svetlana is from a reindeer herding family, living in the village of Khatystyr, in the Republic of Sakha (Yakutia). She completed her postgraduate studies in the Evenki language at the Institute of the Peoples of the North at the Herzen State Pedagogical University. She is currently working for the International Centre for Reindeer Husbandry.

Avevkhay, Roksana (Koryak) comes from the village of Verkhny-Paren' in the Magadan region, in the Russian Far East. She is a second-year student at the Bachelor program of Education and Native Languages in the Institute of the Peoples of the North at the Herzen State Pedagogical University in St. Petersburg. Roksana is very keen on science and research work and in the future would like to work in academia. In her free time Roksana likes to make traditional handicrafts, namely beading and embroidery.

Batkhishih, Burmaa (Dukha) was born in the Tsagaannuur *soum* center of Khuvsgul province of the Northern Mongolia. She is married to a reindeer herder and lived in the East Taiga as a reindeer herder before she became a student at Mongolian University of Agriculture in Ulaanbaatar majoring in Economics.

Bayandalai, Khoschimeg (Dukha) was born in the Tsagaannuur *soum* center of Khuvsgul province of the Northern Mongolia. She is from a reindeer herding family who lives in the West Taiga of the Khuvsgul province. Both of her parents are famous reindeer herders who own the largest herd in the region. Khoschimeg is a 3rd year student at the Kindergarten teacher's school in the Mongolian University of Education in Ulaanbaatar.

Binder, Lloyd (Inuvialuit, Sámi) is the owner of Canada's only reindeer herd and is a descendent of the first Sámi family that made the journey to Canada over 80 years ago, as part of a US and Canadian program designed to alleviate hunger. Binder lives in Inuvik, NWT.

Bolotaeva, Olesya (Koryak) was born in the North East of the Kamchatka region in the small village of Achayvayam (in Koryak language - Echg'eyv'ezem, river without sand»), in the Olyutorsk district. Olesya comes from a hereditary family of reindeer herders - Kekket and K'oyan'. At the behest of her grandmother K'oyan', Olesya entered the Institute of the Peoples of the North at the Herzen State Pedagogical University in St. Petersburg and after graduation began working in the same institution. Currently she is a teacher and an Associate Professor of Paleo-Asiatic languages, folklore and literature. Since 1993 she has taken part in the folk theater-studio Northern Lights, performing the music and dance of Indigenous Peoples of the North, Siberia and Far East of Russia.

Buljo, Máret Rávdná (Sámi). Máret was born and raised in Guovdageaidnu, Norway. She has been living in Nordland for the last 11 years, with her husband and three children. Her daily life is based on all the elements of reindeer herding: her family, traditional foods, handicrafts and reindeer.

Burgess, Philip. Born and raised in Ireland, Philip has been working for the International Centre for Reindeer Husbandry since 2006. With a Masters in Arctic Studies from the University of Lapland, Finland, he has a passion for the Arctic and exploring how best to outreach the work of ICR in word, image and film.

Brown, Karrie (Champagne Aishihik). Karrie Brown lives in Haines Junction Yukon, Canada with her partner Zachary and son Cashis. Living and growing up with her grandparents Audrey and Fred Brown who were very active on the land and always taking Karrie along with them, she learned the landscape of her country and what the plants and animals provided for food. Fishing for salmon and making dry fish from the Yukon River in the summer, picking a variety of plants and berries, her favorite was Moss berries, and collecting tree sap and juniper bush. Karrie is very familiar with the trap line she inherited from Fred. As a kid most weekends in the winter were spent with her grandpa Fred skidooing the line, cutting trails, setting conibear traps and camping at the cabins her grandpa built before she was born. Many times it would be just her and her grandpa skinning and packing up a moose to take back to the family. Currently Karrie works a seasonal position with Parks Canada as a Renewable Resource Technician. During the winter she is working slowly on getting her trap line up and active like her grandpa. Karrie spends a lot of time beading and making Mukluks, skills she learned from her Grandmother Audrey at the age of five, she is very thankful such an amazing skill was passed down to her.

Cheboksarova, Vera (Yukagir). Vera was born in the village of Zyrianka, Verkhnekolymyskiy district in the Republic of Sakha (Yakutia). She graduated from the Institute of the Peoples of the North at the Herzen State Pedagogical University in 1999 with specialization “Preschool pedagogy and psychology” with an additional qualification in “Philology” and as teacher of the Yukagir language. Since 2005 she has worked at Herzen as a teaching assistant at the Department of Paleo-Asian languages, folklore and literature. Her scientific interests include word creation, lexicon and lexicology, phonetics of the Yukagir language, language nomination, folklore of the peoples of the North, and literature of the peoples of the North. Vera has 20 scientific publications including 3 educational methodologies. The subjects of her scientific work correspond to the main scientific direction of the Institute of the Peoples of the North and the profile of the department.

Chernyshova, Svetlana (Even). Svetlana was born in the village of Kiperveem, Bilibino district in the Magadan region. She graduated from the Anadyr Pedagogical School in 1995, and from the Institute of the Peoples of the North at the Institute of the Peoples of the North at the Herzen State Pedagogical University in 2000. With a PhD in Cultural Studies, Svetlana is also an Associate Professor of the Department of Ethnoscurology at Institute of the Peoples of the North at the Herzen State Pedagogical University Herzen State Pedagogical University. Svetlana’s cultural, educational and research activities are connected with the identification and study of the status, peculiarities and manifestation of traditional culture, and the popularization of traditional artistic cultures and folklore of the indigenous peoples of the North, Siberia and the Far East. Svetlana is particularly interested in cultural and environmental activities aimed at developing relevant mechanisms for maintaining and preserving the unique cultural values and traditions of indigenous northern peoples.

Chuprina, Anna (Dolgan). Anna is a third year student in the Bachelor program in Culture at the Institute of the Peoples of the North at the Herzen State Pedagogical University. Anna was born into a family of reindeer herders in the Popigai village of Taimyr (Dolgan-Nenets) in the Municipal District of the Krasnoyarsk Krai.

Chuprina, Evgenia (Dolgan). Evgenia was born in the settlement of Syndysko in the Taimyr (Dolgan-Nenets) municipal district in 1988. She spent all of her childhood in the tundra in a reindeer herding family with her grandparents. Today she is a student at the Taimyr College in village of Dudinka at the health care department. She also works in the Taimyr interregional hospital.

Cleveland, Sonita (Yup’ik). Sonita is a Yup’ik Indigenous knowledge holder from Quinhagak, Alaska, traditionally spelled Kuinerraq in Yup’ik. She was

raised by her mother Katherine Cleveland and her grandma Annie Cleveland. Sonita learned to prepare and cook Yup’ik foods throughout her lifetime of helping her mom and grandma, embodying how Indigenous Knowledge passes on from generation to generation. Sonita enjoys fishing, gathering greens, berries, and foods from the land, and living the traditional Yup’ik lifestyle.

Degteva, Anna (Vepsian). Anna comes from the Republic of Karelia. Since 2007 she has been working with the International Centre for Reindeer Husbandry on various projects both at the national and international level, but mainly focusing on work in Russian reindeer herding regions. Anna Degteva’s scientific interests include holistic impacts assessments; knowledge systems of Indigenous Peoples; and resilience and adaptation of reindeer herding societies in the Arctic to rapid change.

Dondov, Binderiya. Bindi works as a Finance manager of an Interior Design and Construction company called «GerBridge LLC». Before joining this company, she worked at a number of international organizations, including WRH and ICR, with whom she has been interpreting and other tasks since 2004.

Dubovtsev, Andrey (Sámi). Born in 1987 in Tymen. Andrey was a student at the Lovozero Secondary School from 1993-2004. He then studied carving in Lovozero, which he followed by being a student at the Modern Liberal Arts Academy specializing in linguistics. He has also studied in Budapest. In 2013-2015 he was working as a reindeer herder at the integrated agricultural production company «Tundra», where he became an assistant manager of the «Tundra» company slaughter house. He speaks Kildin Sámi, English, Russian and Hungarian.

Eira Sara, Rávdná Biret Márjá (Sámi) Rávdná is born and raised in a reindeer herding family in Guovdageaidnu, Sápmi and is now a PhD student at the Sámi University of Applied Sciences. Her field of interest is Sámi reindeer herders food systems focusing on Sámi traditional knowledge about slaughtering processes, meat production and conservation. She has been working with the International Centre for Reindeer Husbandry since 2009. She has a Bachelors degree in reindeer herding studies from the Sámi University of Applied Sciences (2009) and a Masters degree in Indigenous Studies from the University of Tromsø (2012).

Fefelova, Olga Vyacheslavovna (Sámi). Olga was born in 1998 in Olenegorsk, Murmansk Oblast and has been living in Lovozero since she was born. She has finished 9 grades at the local school, and now is a student at the Northern National College. She plans to continue her education but wants to return to her village. Reindeer husbandry holds a special importance to her.

Firth-Hagen, Jacey (Gwich'in). Jacey is 23 years old and born and raised in Inuvik, Northwest Territories, Canada and is a proud youth representative of the Gwich'in Council International. After graduating High School she moved to Yellowknife, the capital of the Northwest Territories where she pursued education and employment for numerous years becoming an avid volunteer for local environmental and social justice organizations and also a radio show host for a youth radio show celebrating youth accomplishments and the creator of The Gwich'in Language Revival Campaign #SpeakGwichinToMe promoting the critically endangered Gwich'in language and the importance of Indigenous languages. She is currently working towards a Northern Outdoor and Environmental Studies diploma at the Yukon College in Whitehorse, Canada.

Ganbat, Sarantuya (Dukha) was born in the Tsagaannuur *soum* center of the Khuvsgul province of Northern Mongolia. She is from a reindeer herding family in the East Taiga, in reindeer herding brigade no.1 of the Khuvsgul province in Northern Mongolia. She is a student at the Ikh Zasag International Institute majoring in Foreign Trade relations in Ulaanbaatar.

Ganbold, Bayarmagnai (Dukha) was born to a reindeer herding family from the West Taiga of the Tsagaannuur *soum* in the Khuvsgul province, northern Mongolia. In 2016, he graduated from the Eco-Asia Institute majoring in Environmental management. Currently he is working as volunteer ranger in the Tsagaannuur *soum* of the Khuvsgul province in order to protect the nature of his home place.

Gashilova, Lyudmila (Nivkhi). Lyudmila was born in the village of Chayvo on the eastern coast of the Sea of Okhotsk in Sakhalin. Lyudmila studied at a boarding school and in 1978 she graduated from the Peoples of the North's faculty of the Leningrad State Pedagogical Institute. Lyudmila graduated from the postgraduate course and defended her PhD thesis in the Nivkh language. She is currently conducting research on issues related to Nivkh language, folklore, literature and culture. She has been a teacher at the Institute of the Peoples of the North at the Herzen State Pedagogical University for 35 years, where she served as Director for 9 years. Today she is a professor and head of the department of Paleo-Asian languages, folklore and literature. Lyudmila is the author of more than 130 scientific articles and manuals on native language, folklore and literature.

Gerasimova, Alena (Evenki). Born in 1986 in Neryungri in the Republic of Sakha (Yakutia), Gerasimova grew up in the Evenki village of Iengra and has been migrating with her grandparents' reindeer in the taiga. She has a Bachelor and Masters degree in Chinese history from Saint-Petersburg State University, and a Masters degree in Arctic Studies from the Saint-Quentin-en-Yvelines Uni-

versity in Versailles. Alena is a member of the Evenki nomadic tribal community of «Oldoyo», which was created by her father Evgeniy in 1993. She still visits the reindeer herding camp, where her uncles and cousins look after the family's reindeer. She is currently working for the International Centre for Reindeer Husbandry.

Gerasimova, Nadezhda (Evenki). Born in 1960 into a reindeer herding family in Iengra (in the Republic of Sakha (Yakutia)). Before going to school, she lived in the taiga with her family. In 1967, Nadezhda went to boarding school, where she learned Russian. In 1980, she graduated from the Ulan-Ude pedagogic college and began to work as a primary school teacher in Iengra. In 1982 she married and now has three children – Stanislav, Alena and Kseniya. In 1987 she received a Diploma in higher education at the Blagoveschensk Pedagogical Institute. Since 1993, she has worked as the chief specialist on Indigenous issues in the Neryungri administration. Every summer is spent in the taiga with her family, at her parents' reindeer herding camp. Nadezhda has reindeer in the Evenki nomadic tribal community “*Oldoyo*”. From her parents she learned how to work with reindeer, milk reindeer, make clothes and shoes, and more. She loves cooking traditional food, and has just authored a cookbook on Evenki traditional foods.

Gombo, Tsetsegmaa (Dukha) was born in the Tsagaannuur *soum* center of the Khuvsgul province of Northern Mongolia. She is from a reindeer herding family who live in the East Taiga, in reindeer herding brigade No.1. She is a student at the Mongolian University of Agriculture in Ulaanbaatar.

Gruben, Chantal (Inuit). Chantal is a young Inuit woman who was raised by her grandparents and lives in Tuktoyaktuk, Canada. She was a participant at the EALLU workshop in Kautokeino, Norway in early 2017.

Gulyaev, Maxim (Even). Maxim is a young Even reindeer herder from Topolinoe. When he was 5 years old he was a participant of the project “Lena” and lived for one year in Norway and learned the Sámi language. Every summer he is working as a reindeer herder at the Nomadic family-clan-based obshina named after his Great Grandfather Piotr Pogodaev. Today he is a student at the Yakutsk College for Economics and Finance.

Hansen, Kia Krarup. Kia is a PhD student at UiT the Arctic University of Norway in Tromsø. She is originally from Denmark, but has been living and working with reindeer herders in Finnmark and Troms for many years. Kia holds a Bachelors and Masters degree in Biology - Arctic Animal Physiology from the Department of Arctic Biology (UiT), with a focus on reindeer and reindeer husbandry. Together with students and employees at the Copenhagen Hos-

pitality School, she has developed and presented dishes based on Sámi traditional food culture for a cookbook and the food festival in Århus, Denmark 2013. Her interest in reindeer husbandry is interdisciplinary, and includes traditional knowledge and adaptation to change in Arctic societies. Over the past few years, she has been working on different projects with the International Centre of Reindeer Husbandry. She loves to spend time outdoors, mushing and hunting.

Harris, Cyrus “Naungaq” (Iñupiat). Cyrus is an Iñupiat Indigenous Knowledge holder from Kotzebue, Alaska. Cyrus has lived his entire life in the Kotzebue region and has spent this time living in the country and at camp with his parents, hunting, fishing, dog mushing, and gathering resources. Today, he lives in Kotzebue and passes his knowledge onto his children and grandchildren, while working to ensure that his community has access to traditional foods.

Kaurgina, Vlada (Chukchi). Vlada is a second year student at the Arctic College of the Peoples of the North, in the village of Chersky, in the Nizhnekolymsky District of the Republic of Sakha (Yakutia), Russia. She is studying reindeer husbandry.

Kaurgina, Zhanna (Chukchi). Teacher at the Arctic College of the Peoples of the North, Chersky, in the Nizhnekolymsky District on the Kolyma River of the Republic of Sakha (Yakutia), Russia. She is also a reindeer herder.

Krasavin, Aleksandr (Sámi). Born in 1998 in Olenegorsk. He spent his childhood in the tundra, and before going to school was living on the tundra near the Kharlovka river and Nalyam lake, Murmansk Oblast. After finishing school, Aleksandr entered the Northern National College in Lovozero, Murmansk Oblast. His specialization is reindeer herding and machinery operation. Like his father, Aleksandr likes fishing, and going to the tundra on a snowmobile. Since his parents have reindeer, Aleksandr is going to work in the tundra according to the family tradition. He believes that someone has to take care and watch after their reindeer. Aleksandr is also learning from his father how to build reindeer sledges.

Krivoshapkina, Irina. Deputy Director at the Arctic College of the Peoples of the North, Chersky, in the Nizhnekolymsky District on the Kolyma River of the Republic of Sakha (Yakutia), Russia.

Mathiesen, Svein Disch. Svein has a PhD from the University of Tromsø (UIT), in the Department of Arctic Biology and Department of Medical Biology, Faculty of Medicine in 1999. Today he is employed at the International Centre for Reindeer Husbandry Centre in Kautokeino as the institute leader of the University of the Arctic Institute for Circumpolar Reindeer Husbandry, and is also permanently employed as a Professor at the Sámi University of Applied Sciences

and is Professor II at UIT Arctic University of Norway in Tromsø. Mathiesen is a member of the Norwegian Scientific Academy for Polar Research. He has supervised several masters and doctoral students. His main interest today is interdisciplinary knowledge about adaptation to climate change in the circumpolar north and how to build local expertise in Indigenous communities in the North through international cooperation.

Okotetto, Elvira (Nenets) was born into a Nenets nomadic reindeer herding family, in the very north of the Yamal Peninsula, on the Sayakha tundra. In 2011, she graduated from the Yamal Multi-discipline college, with the specialty «Informatics and ICT» and since then has been working as a teacher in Secondary school № 4 in the city of Salekhard. In parallel, Elvira has been taking higher education at the Tyumen Industrial University. In 2017, she will graduate as an expert in Computer Science and Engineering. Elvira has very diverse interests: apart from a professional interest in computer sciences and telecommunications, she devotes her time to studying foreign languages (English), psychology and local history.

Okotetto, Marta (Nenets) is from the Priuralskaya tundra, Yamal Nenets AO. She was born into a family of private reindeer herders, who maintain the traditional nomadic way of life. In the summer of 2017, Marta will graduate from the Yamal Multi-discipline College, where she studied in the Elementary Teaching School program. It is Marta's deep wish to continue her education at the University level and to learn more about the culture, languages and social life of Arctic Indigenous Peoples. At the same time, Marta would like to contribute to the economic development of her people - the Nenets – and, therefore, has a particular interest in business and entrepreneurship.

Osenin, Nikolay (Even). Reindeer herder. He was born in 1942 in Alysardakh in the Ust'-Maysky district of the Sakha Republic. All his life he worked as a reindeer herder in different reindeer organizations. He used to be the leader of Brigade #5 of the Tomponsky sovkhos in the Republic of Sakha. Today he is retired and lives in Topolinoe.

Oskal, Anders (Sámi). Anders is the Executive Director of the International Centre for Reindeer Husbandry in Guovdageaidnu/ Kautokeino, Norway. Oskal is a reindeer herding Sámi from Northern Norway, with a Master of Science in Business Administration specialized in Innovation Economy. He also represents the Association of World Reindeer Herders in the Arctic Council, and is an Executive Committee Member of the Arctic Economic Council. Oskal was also a co-author of the IPCC AR5 WGII released in 2014. Prior to his current position, he worked for a number of years with business development in reindeer herding. Oskal is the project leader of the EALLU project.

Pogodaeva, Maria (Even). Reindeer herder. She was born in 1952 by the Okatchan creek in the Ust'-Maisy district of Sakha (Yakutia) in a tent. She received an education in the '*Ola Veterinarian technikum*' in the Magadan region and in the Yakutsk State University as a biologist. All her professional life has been devoted to reindeer husbandry. In 1984 she was elected to the Supreme Council of USSR and afterwards to the Regional Parliament of Sakha Republic, where she served as the Chair of the Standing Committee on Indigenous Peoples Issues. After a visit of Sámi reindeer herders to Topolinoe in 1990 she became one of the leaders of the World Reindeer Herders Association and served as the Vice-President of WRH from 1997 until 2009. Currently she is a private reindeer herder and the leader of Nomadic family-clan-based *obshina* named after Piotr Pogodaev.

Pogodaev, Mikhail (Even). Reindeer herder. Mikhail was born in 1978 in Topolinoe, in the Republic of Sakha (Yakutia) in a reindeer herding family. In 2001 he graduated from Saint-Petersburg State University of Economics and Finance and in 2007 he defended his PhD thesis in the same university. In 2009 he was elected as the chair of Association of World Reindeer Herders and still serves in this position. Currently he is also the vice-chair of the International Centre for Reindeer Husbandry, President of the Council at the UArctic EALÁT Institute at ICR, is Chair of the Even Peoples Association and is a researcher at the Institute for Humanities and Indigenous Peoples of the North Issues at the Siberian branch of the Russian Academy of Sciences.

Prokopjeva, Alena (Even). Reindeer herder. She was born in Topolinoe, in the Republic of Sakha (Yakutia) in 1969. She graduated from Yakutsk State University as a philologist and Moscow Pedagogical University named after M. Sholokhov as a psychologist. She used to work as a teacher at the UNESCO Arctic School for Indigenous Peoples of the North in Neryungri, also in the Republic of Sakha (Yakutia). Currently she is a teacher and leader of the branch of the Arctic College for Peoples of the North in Topolinoe.

Purevjav, Udval (Dukha) was born in the Tsagaannuur *soum* center of the Khuvsgul province of Northern Mongolia. She is from a reindeer herding family who live in the East Taiga, in reindeer herding brigade No.1. She is a student at the Nursing school of the Mongolian University of Medical Science in Darkhan, Mongolia.

Riddervold, Astrid is a 93 year old Norwegian who is a leading expert in food culture. Her background as both a chemist and ethnologist is unique in this context. It was originally her Master's degree thesis in ethnology, which formed the basis for the book «Conservation of food», which was published first in 1993. In 2003 Riddervold pioneered the documentation of traditional knowledge of

the smoking of reindeer meat in coproduction with Sámi reindeer herder, Inger Anita Smuk. Riddervold has written several books and articles on the preservation of food.

Sara, Elna (Sámi) works as Information Manager at the International Centre for Reindeer Husbandry in Kautokeino. She has also worked for the Association of World Reindeer Herders since its inception in 1997. From a reindeer herding family, she has worked in the field of international cooperation in reindeer husbandry since 1990. She also worked for NBR-NRL, the Sámi Reindeer Herders Association of Norway for 15 years. She lives in Guovdageaidnu/Kautokeino.

Serotetto, Nechei (Nenets) comes from a nomadic family of private reindeer herders, on the Yamal peninsula, YNAO. She is a first year Masters student at the Institute of the Peoples of the North at the Herzen State Pedagogical University in St.Petersburg, studying linguistics and pedagogy. Nechei is particularly interested in traditional knowledge related to preserving reindeer products and slaughtering. That is why she is currently doing a comparative analysis of the knowledge and technologies of reindeer slaughtering by the Sámi in Western Finnmark and the Nenets in Yamal. For this purpose Nechei has learned the Sámi language. In addition, she devotes her time to learning English and making traditional handicrafts.

Smuk, Inger Anita. (Sámi) Inger Anita is a reindeer herder from Eastern Finnmark. She has been working in international cooperation between herding peoples for many years and is currently Chair of the Board of the International Centre for Reindeer Husbandry. She has a deep knowledge on the process and benefits of *suovas*, the smoking of reindeer meat.

Lyubov Sidorova (Evenki). Born in 1975, she works as a reindeer herder and tent worker, as well as being the accountant for the nomadic tribal community - «*In the name of Vladimir Stepanovich Sidorov*». She also makes traditional handicrafts and national clothing.

Sorokin, Anatoly (Koryak) was born in the village of Tilichiki in the Olyutorsky district of Kamchatka. He belongs to the settled coastal Koryak, namely nymylan-alyutor. At present Anatoly is in his last year of a PhD program at the Kamchatka State University named after Vitus Bering, in Petropavlovsk-Kamchat-sky, researching the lexical system of the Alyutor dialect of Koryak language with a special focus on reindeer herding, fishing and hunting terminologies. His main research interests are linguocultural studies and linguistics.

Tahbone, Sandy & Marjorie (Iñupiat). Sandy and Marjorie are mother and

daughter Iñupiat Indigenous Knowledge holders from Nome, Alaska. Both have spent their lives, and continue to, use their Indigenous Knowledge to obtain, process, and consume their traditional foods. Both are strong participants and provide much to keep their community physically and mentally healthy with recognition of the importance of cultural identity.

Tokhtosova Valentina (Yukagir). Deputy director of educational issues at the Arctic College of the Peoples of the North, Chersky, in the Nizhnekolymsky District on the Kolyma River of the Republic of Sakha (Yakutia), Russia. Her specialization is teaching.

Turi, Issát (Sámi) Issát is a reindeer herder who divides his time according to the season between the village of Guovdageaidnu in Finnmark and Ráidna, an island in Troms county, in Northern Norway. He has a particular interest in the traditional Sámi way of slaughtering reindeer and preserving meat. He has worked internationally with reindeer herders in Mongolia and Russia. Recently he has been working with a special program on the outreach of traditional knowledge related to Sámi culture to European journalists and chefs.

Unger, Suanne. Suanne works for the Aleutian Pribilof Islands Association, Inc. She is the author, compiler and coordinator of the recently published seminal work on Aleut traditional food culture, QAQAMIIGUX[^]: Traditional foods and recipes from the Aleutian and Pribilof Islands. She lives in Anchorage with her family.

Yaglovskaya, Maria (Chukchi). First year student at the Arctic College of the Peoples of the North, Chersky, in the Nizhnekolymsky District on the Kolyma River of the Republic of Sakha (Yakutia), Russia. Her specialization is Ecology.

Yakovleva, Olesya (Yup'ik). Olesya is from the clan of Lyakag'mi. Her Yup'ik name is *Ayvylik* which means little walrus. Olesya was born in the village of New Chaplino (Tasik), in the east of the Chukotka Autonomous Okrug in Russia. She studies the languages of Indigenous Peoples of the North, Siberia and the Far East at the Institute of the Peoples of the North at the Herzen State Pedagogical University in Saint Petersburg. Her PhD research topic is the system of food making in the Yup'ik –Ayvan Languages.

Zakharova, Sofia (Dolgan). Sofia was born in the Anabar region of the Republic of Sakha (Yakutia). She was born in a tent near the Laptev Sea and the “Utskurder” area, in the reindeer herding brigade No. 2. She has an education in agriculture, and her major is Livestock Engineer. Sofia is a mother of five children. Currently she works as a teacher in reindeer husbandry and master of vocational training at the Arctic College of the Peoples of the North, Chersky, in the Nizhnekolymsky District on the Kolyma River of the Republic of Sakha (Yakutia), Russia.

Zolzaya, Uudus (Dukha) was born in Tsagaannuur *soum* of the Khuvsgul province of the Northern Mongolia. She lives with her family who are reindeer herders in the west Taiga. She is from reindeer herding brigade no.2 in the west Taiga of the Khuvsgul province. Currently she is a 4th year student at the Mongolian University of Art and Culture majoring in Cultural Management in Ulaanbaatar.

Zorigt, Zagalmaa (Dukha) was born in the Tsagaannuur *soum* center of the Khuvsgul province of the Northern Mongolia, where she lived most of her childhood. Currently she is a student at the Dalai Van Institute majoring in Environmental Management in Murun, also in the Khuvsgul province.

LIST OF EALLU ACTIVITIES

- SDWG EALLIN St Petersburg/ Herzen Univ. 24-25 November, 2014
- SDWG EALLIN pre-launch, Tromsø, Norway, January 19, 2015
- EALLU/ AIPCI/ SCPAR, Kautokeino, Norway. March 19-24
- EALLU/ Reindeer Herding Anniversary in Canada. Inuvik. March 27-31, 2015
- MoUs with ICR/ AIPCI with partners in Inner-Mongolia, China. May 21-24, 2015
- EALLU/ AIPCI *Biebmu* - Nordic Food Festival in Copenhagen. May 28-30, 2015
- EALLU/ AIPCI *Nosgecher* Khatystyr, Sakha Republic. August 22-24, 2015
- EALLU/ *Gávnnadeapmi*/ AACAA, Inari, Finland. September 17-19, 2015
- CAFF Nomadic Herders Mongolia, Terelj National Park. September 18-20, 2015
- EALLU/ AIPCI/ RCN *Rievdan*, Kautokeino, Norway. September 20-22, 2015
- EALLU/ AIPCI Northern Sea Route Seminar, Reykjavik, Iceland, October 16, 2015
- EALLU/ AIPCI/ *Nosegcher*/ NF AGM, Yakutsk, Sakha Rep., Russia, November 4-5, 2015
- EALLU/ AIPCI/ Arctic College Chersky, Kolyma, Sakha Rep., Russia November 9-13, 2015
- EALLU/ AIPCI/ *Nosegcher* Uryung-Khaya, Anabar, Sakha Rep., Russia December 5-8, 2015
- EALLU/ AIPCI food event at the CAFF meeting in Kirkenes, Norway February 4, 2016
- EALLU/ AIPCI/ RCN *Rievdan*/ *Geitmyra* Food Culture Centre for Children, Food event at the celebration of the Sámi National Day, Oslo, Norway February 6, 2016
- EALLU/ AIPCI/ RCN *Rievdan* Indigenous Food Field Trip for International Food Journalists, Kautokeino, Norway, April 11-13, 2016.
- EALLU/ AIPCI/ RCN *Rievdan* International Festival of Traditional Indigenous Food Cultures, by Indigenous youth from different 7 Indigenous Peoples, Kautokeino, Norway, April 13, 2016.
- EALLU/ Nomadic Herders Sápmi International University Course on Traditional Knowledge and Biodiversity Conservation, Kautokeino, Norway, April 11-24, 2016.
- EALLU/ AIPCI Russian-Norwegian Arctic Food Business Cooperation Symposium. Hosted at the Norw. Embassy in Moscow, May 16, 2016.
- EALLU/ AIPCI Scandinavian and Russian Indigenous Food Reception, on the occasion of the Norwegian National Day May 17, Hosted at the Norw. Embassy in Moscow, May 17, 2016.
- EALLU/ AIPCI Field Workshops, Tompo River, Sakha Rep., Russia, April 2-3, 2016
- EALLU/ AIPCI Youth and Knowledge Transfer Workshops, Midnite Sun Reindeer Farm, Nome, Alaska, US, June 16-21, 2016
- EALLU/ *Rievdan* Food Culture Field Workshop, Khuranakh, Tomponsky, Sakha Rep., Russia, August 4-11, 2016.
- EALLU/ *Rievdan* food culture science workshop, with 18 young Indigenous students from Russia presenting food culture thesis and traditional food dishes. At Herzen University, St.Petersburg, Russia, September 12, 2016.
- EALLU/ *Rievdan* Science Discussion with Arctic Colleges of Russia on food culture and TK development. At Herzen University, St.Petersburg, Russia, September 13, 2016.
- EALLU/ *Rievdan*/ AIPCI food culture and business seminar Salekhard, Yamalo-Nenets AO, Russia, November 8, 2016.
- EALLU/ *Rievdan*/ AIPCI food culture seminar and reception Yakutsk, Sakha Rep, Russia, November 26-28, 2016.
- EALLU/ *Rievdan*/ NCM *Nordisk ressursforvaltning* workshop, Nuuk, Greenland, December 10, 2016.
- EALLU/ *Rievdan*/ AIPCI Sámi food culture demo workshop, Ávži, Norway, December 20, 2016.
- EALLU / *Rievdan* Knowledge and Indigenous Food Systems, Kautokeino, Norway. February 1-3, 2017
- EALLU Arctic Indigenous Cuisine EXPO. Arctic Territory of Dialogue Forum. Archangelsk. March 28-9, 2017

OTHER EALLU DELIVERABLES

- New Course on Biodiversity and Traditional Knowledge (10 ECTS) at the Sámi University of Applied Sciences, Kautokeino, Norway (2016-). ICR/ EALLU-related components focus on food culture and Traditional Knowledge.
- New MSc Program in Sustainable Reindeer Herding and Traditional Knowledge developed (120 ECTS). Applied from Sámi University of Applied Sciences, Kautokeino, Norway. ICR/ EALLU-related components focus on food culture and TK, economic organization and innovation.
- Course Seminars on Russian Indigenous Peoples' Food Culture. Implemented at Herzen University, St Petersburg, Russia. EALLU-related components focus on food culture, language and TK.
- Delivered Education for Arctic Indigenous Youth. For example, First BSc Thesis in Nenets Language, on Nenets terminology, by Ms. Nechei Serotetto, Yamal. Herzen University, SPb, 2016 (also a contributor to this book).
- AMAP AACAC Barents Report Indigenous Peoples' Chapter. ICR/ EALLU-related components on local economic development, economy and TK.
- New Cookbook: "Traditional Cuisine of Evenki People from Iengra and Southern Sakha (Yakutia)". Author Mrs. Nadezhda Gerasimova, Senior Evenki Herder from Sakha Rep., Russia (also a contributor to this book)

ACRONYMS

AACA	- Adaptation Actions for a Changing Arctic
AC	- Arctic Council AEC - Arctic Economic Council
AIPCI	- Arctic Indigenous Peoples Culinary Institute
AMAP	- Arctic Monitoring Assessment Program
IASC	- International Arctic Science Committee
IASSA	- International Arctic Social Sciences Association
ICASS	- International Congress of Arctic Social Sciences
ICC	- Inuit Circumpolar Conference
ICR	- International Centre for Reindeer Husbandry
IPCC	- Intergovernmental Panel on Climate Change
NBR	- Norgga Boazosápmelaččaid Riikkasearvi
NRL	- Norske Reindrifsamers Landsforbund
SCPAR	- Standing Committee of Parliamentarians of the Arctic Region
SDWG	- Sustainable Development Working (of Arctic Council)
UArctic	- University of the Arctic
UEI	- UArctic EÁLAT Institute
WRH	- Association of World Reindeer Herders

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3 generations of Evenki reindeer herders milking their reindeer. Anna Kondakova, Nadezhda Gerasimova, Anna Egorovna Kondakova and Olimpiada Kondakova in the Neryungri district, Republic of Sakha (Yakutia). Photo: Yuri Kokovin



We believe indigenous peoples food culture and the practice of food sovereignty in the Arctic is a means by which the possibilities of an economic and societal development based on our own resources, knowledge, and collective strength can be fulfilled.

