

Hunting and Morality as Elements of Traditional Ecological Knowledge

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Abstract Contemporary subsistence hunting practices of North American Indians have been questioned because of hunters' use of modern technologies and integration of wage-based and subsistence livelihoods. Tribal traditional ecological knowledge (TEK) has been questioned on similar grounds and used as justification for ignoring tribal perspectives on critical natural resource conservation and development issues. This paper examines hunting on the Lac du Flambeau Indian Reservation in North Central Wisconsin, USA. The study used semi-structured interviews with hunters from the reservation to document their contemporary hunting practices and the traditional moral code that informs their hunting-related behaviors and judgments. Subsistence hunting is framed in the context of TEK and attention focused on the interplay between TEK's practical and moral dimensions. Results indicate the importance of traditional moral codes in guiding a community's contemporary hunting practices and the inseparability and interdependence of epistemological, practical, and ethical dimensions of TEK.

Keywords American Indian · Environmental values · Ethics of hunting · Ojibwe · Subsistence · Traditional ecological knowledge · Tribal · White-tailed deer

Introduction

Traditional ecological knowledge (TEK) is part knowledge system, part system of practice, and part belief system (e.g.,

Berkes *et al.* 1994; Berkes 2008; Nadasdy 1999). TEK is community-specific, place-based (i.e., geographically-specific) and accumulates over time by sharing experiential knowledge across generations (Berkes 2008; Menzies and Butler 2006). Communities change their TEK through the progressive accumulation of experiences and adaptive responses to internal (i.e., within the community) and external (i.e., macro-level) economic, political, social and ecological change (Berkes 2008; Menzies and Butler 2006).

The knowledge system (i.e., epistemological) aspect of TEK incorporates understanding of ecological relationships about biota, ecosystems, and places. Systems of practice, or the practical component of TEK, refer to the application of accumulated, intergenerational knowledge, using best practices, economic relationships, expertise, skill, and formal or informal rules (Berkes 1989). Examples of systems of practice include communal systems of hunting, fishing and wild plant harvests, as well as kinship based movement or trade of material goods. The third system involves moral and spiritual values that make up a community's worldview. These values manifest in traditional moral codes, moral judgments about right and wrong, and ceremonial practices associated with plants, animals, and important geographic locations. Moral and spiritual values shape a community's worldview by framing its collective understanding of how to describe the world and the significance of being human in relation to other beings in the world (Cordova 2007).

Although we describe the epistemological, practical, ethical dimensions of TEK separately, they are in reality inter-related and inseparable (Berkes 2008). For instance, in the preceding paragraph we used communal systems of subsistence hunting as an example of systems of practice. However, hunting systems are more accurately described as manifestations of the multiple, intersecting dimensions of a community's TEK (Reo 2011). In this paper, we examine a subsistence hunting system on the Lac du Flambeau Indian

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Reservation to illuminate the relationships between practical and ethical dimensions of TEK. We interviewed avid hunters from the Reservation to document their hunting practices and the traditional moral code that informs their hunting-related behaviors and judgments.

There is a longstanding literature documenting subsistence hunting systems around the world. Some of the most significant understandings of contemporary subsistence hunting in North America can be found in studies of late-20th Century Indian adaptations to social, ecological, political and economic changes. Influential examples include Adrian Tanner's work with Cree hunters of Mistassini (1979), Hugh Brody and the Athabascans of northeast British Columbia (1981) and Ann Fienup-Riordan and the Yup'ik in western Alaska (2000). These and other studies (e.g., Nadasdy 1999, e.g., Berkes *et al.* 2000; Peloquin and Berkes 2009; Read *et al.* 2010) have documented the complexity of knowledge, practices, and beliefs within contemporary subsistence hunting systems.

Within the last 10–15 years, an interdisciplinary community of researchers that studies socio-ecological systems has reinforced the idea that subsistence systems are practical expressions of TEK (e.g., Parlee *et al.* 2005; Ford *et al.* 2006; Natcher *et al.* 2007; Chapin *et al.* 2008; Kofinas *et al.* 2010; Pearce *et al.* 2010). Their aim is to understand how TEK and traditional resource management systems help resource-dependent societies cope with social and ecological changes. The main focus for these studies is on resource use and management (e.g., Gadgil *et al.* 1993; Berkes 1998; Berkes *et al.* 1998; Nadasdy 1999; Trospen 2002) and the links between epistemological and practical subsystems of TEK (e.g., Berkes 1993; Nakashima 1993; Berkes *et al.* 1998; Berkes 2008).

Despite this research, natural resource managers and policy makers may still question whether Indian hunting practices in North America are based on subsistence needs and traditions. In Canada and the United States, segments of the sportsmen, environmentalist, animal rights and academic communities have voiced objections to some hunts on the grounds that the practices no longer serve truly subsistence needs or represent authentic cultural traditions (for various examples involving different sets of critics see Smith 1988; Livingstone 1989; Condon *et al.* 1995; Donner 1997; Gaard 2001; Freedman 2002; Nesper 2002; Taylor 2003; Kemmerer 2004; Riemer 2004; van Ginkel 2004; Dudas 2005). Opponents seek to invalidate the links between TEK and modern hunting practices and view claims about tradition to be contemporary inventions that serve political purposes (and hence are non-traditional (Hobsbawm 1992)).

In particular, the adoption of technologies originating from other cultures has been a topic of controversy due to the general assumption that adopting a foreign technology entails adopting the worldview of the culture that created

that technology (Borgmann 1984; Callicott 1989). For example, the Makah have been criticized for using outboard motors and large caliber rifles in pursuit of grey whales. Critics portray Makah whaling as a bad reenactment of historical hunts that ceased in the 1930s and that have no purpose in modern society given other options for food, economic development, and cultural vitality (Gaard 2001; Kemmerer 2004). Criticisms arose in the Wisconsin spearfishing controversy in the 1980s, where protesters objected violently, insisting that Ojibwes should only be allowed to spear fish if they used circa 1800 technologies from the era of their treaties (Nesper 2002; Riemer 2004).

Wenzel has also documented similar claims in the Inuit sealing controversy of the 1980s (Smith 1988; Livingstone 1989; Wenzel 1991) and was subject to criticism for his defense of subsistence and traditional dimensions of Inuit hunts (Donner 1997). One of his research goals was to change the perception that Indian hunting practices, which rely on modern technologies or involve commercial dimensions, are non-subsistence, untraditional activities. He sees this perception as problematic because it assumes subsistence practices are closed systems (Wenzel 1991) that satisfy all their own needs without external influence. Rather, traditional subsistence activities are open systems where hunters adapt to political, economic and environmental changes outside of their control (Menzies 2006) and often to do so by integrating inputs from other cultures. What is more, commerce has long been an important aspect of subsistence economies (See, for example, historical accounts of trade in the Columbia River basin: Barber 2005). Using this conceptual framework, Inuit adoption of technologies and sale of sealskins are viewed as a necessary (and possibly temporary) adaptation to meta-scale forces within dynamic socio-economic systems.

These disagreements highlight the confusion that exists over what constitutes subsistence orientation (Case 1989; Wenzel 1991) and over what is traditional about contemporary American Indian hunters. Adding to the confusion, most existing results linking subsistence and TEK are from communities in the far north, whereas much of the criticism has focused on federally-recognized tribes in the U.S. Further research and clarification is needed in areas like the U. S. and southern Canada where tribes and first nations are less isolated, their economies are highly integrated with non-tribal markets, and most hunters pursue dual paths as fulltime wage earners and subsistence harvesters. In communities such as these, research that moves beyond the practical dimensions of hunting systems to include ethical dimensions of hunting could help explain the complex ways tribal traditions play out in contemporary hunts. With this approach in mind, we investigated the relationships between one community's belief system and their hunting practices as a case study linking subsistence hunting and TEK.

Conceptual Framework and Terminology

Building on the work of Wenzel, Berkes, and others, we conceive subsistence activities as open systems, and situate them in the broader context of TEK and socio-ecological systems (Fig. 1). Using this conceptualization of subsistence, we investigated the relationship between contemporary Indian hunting practices and a component of the belief system of TEK that we refer to as the traditional moral code. In particular, we wish to explore the degree to which hunting practices are guided by a traditional moral code. For our study, hunting practices are the skills and activities applied directly in hunting and processing animals, from pursuit techniques to butchering to disposal of unused animal parts. They also include background or preparatory activities such as training and ceremonies. The traditional moral code is the system of communally held moral judgments members use to guide their practices. The judgments are specifically moral when they (1) concern interpretations of right and wrong, good and bad or proper and taboo, and (2) reflect traditional values, such as respect for the woods or reciprocity. We consider subsistence practices, moral judgments, and values to be traditional when they are transmitted to and instilled in community/family members through intergenerational relationships as evident through ritualization (i.e., incorporation into ceremonies) and relative consistency across generations. Our conception of tradition is dynamic because people constantly rethink and transform traditional practices, often for pragmatic reasons when they face changing circumstances and new challenges (Shils 1981).

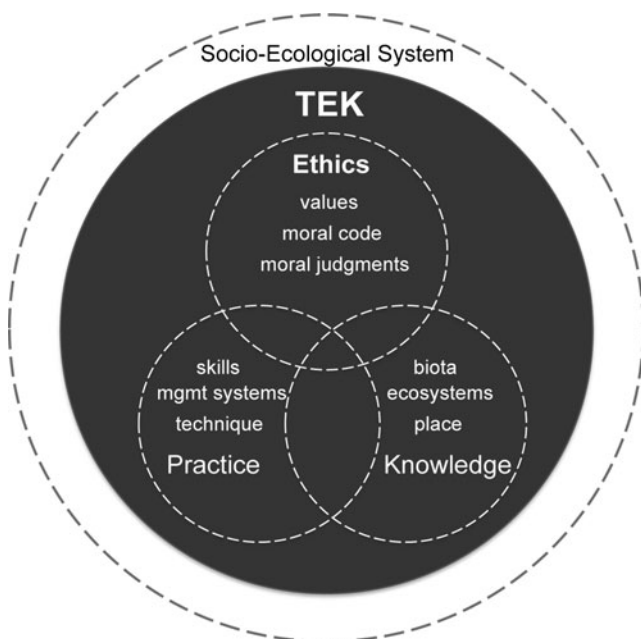


Fig. 1 Conceptual diagram of components of traditional ecological knowledge situated within broader Socio-Ecological Systems

Following Shils, some traditions such as science and reason may be non-substantive because they guide a community's sense of how to adapt.

Consistent with our dynamic conception of traditions, incorporation of a single or set of non-traditional practices, we argue, does not render the entire subsistence system non-traditional. That is to say, non-traditional tools and practices by themselves do not necessarily or consequentially determine the moral code of those who adopt them. Adoption and long-term integration of non-traditional tools and practices into subsistence systems may in fact be guided by a community's traditional moral code. Using this conceptualization, hunting can be viewed as a traditional activity that includes traditional practices, moral judgments, and values, despite the incorporation of non-traditional tools.

Study Area and Methods

Our study was conducted on the Lac du Flambeau Reservation (Fig. 2), homeland of the Lac du Flambeau Band of Lake Superior Chippewa Indians (LDF). The reservation is approximately 350 km² in area. Woods and water dominate the landscape of the reservation, including 50% upland forest, 29% wetlands and 21% lakes and rivers. As of 2007, the LDF Tribe had just over 3,100 enrolled citizens, with over 1,700 living on the reservation. At that time, the reservation was also home to just under 1,300 Indian and non-Indian individuals who are not LDF tribal citizens (LDF internal integrated resource management planning document, 2008).

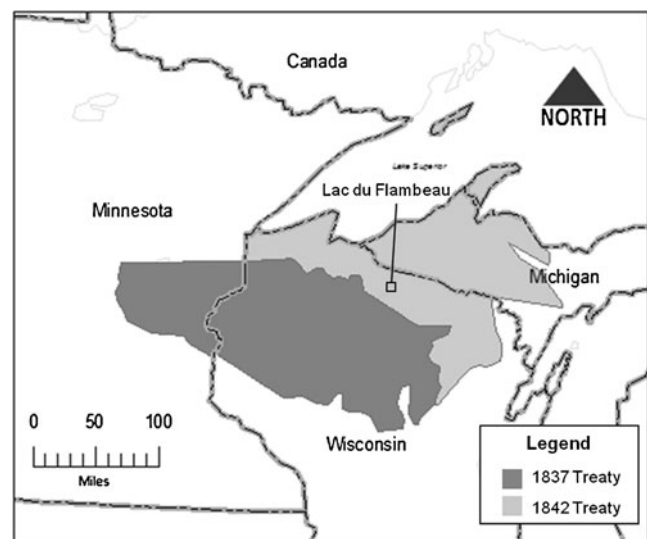


Fig. 2 Map showing location of Lac du Flambeau Reservation in relation to 1837 and 1842 treaty territories where members of Lac du Flambeau Tribe and five other Ojibwe bands have rights to hunt, fish and gather resources on public lands off their respective reservations

This article is the result of participatory research conducted with the citizens and staff from the LDF Tribe. Our objective was not only to answer the 'who's, what's, when's, where's and how's of LDF hunting practices, but to provide a skeletal outline of the hunting-related aspects of the LDF Ojibwe morality and determine how traditional values and moral judgments influence white-tailed deer (*Odocoileus virginianus*) hunting practices.

In 2007 and 2008, we interacted regularly with active white-tailed deer hunters, natural resource managers and elected tribal officials from the LDF Tribe. These interactions helped us frame and refine our research focus. Key contacts from the tribe, including the Tribal Council President, the Deputy Director of Natural Resources and the Tribal Wildlife Manager, helped identify interview participants. We designed a question-concept matrix outlining a series of interview questions plus respective research concepts. We pre-tested this interview instrument with hunters from politically distinct but culturally related tribes, making adjustments based on their feedback. The Human Research Protection Program at Michigan State University approved our research protocol (project approval number 09–300).

In the summer of 2009, we conducted in-depth semi-structured interviews with 14 enrolled LDF citizens who were highly active hunters and had been involved in white-tailed deer hunting since they were children. All participants were from the LDF Reservation although one had spent a significant number of years living in a nearby city. Their ages ranged from 17 to 72 and included 13 men and one woman. The interviews followed the questions established in the question-concept matrix, maintaining the same interview question sequence as best as possible. To learn about hunting-related morality, we asked hunters to tell us about what they teach young people, whom they are training to become hunters, that does not have to do with technique or skill. We asked interviewees about the content of what young hunters learn regarding right-wrong and acceptable-unacceptable hunting behavior, practices and attitudes. To avoid creating potential confirmation biases, we did not discuss traditional ecological knowledge or ask them how morality might be a part of their community's TEK.

We recorded all interviews using a portable digital audio recorder and later transcribed the audio files. Interview transcripts were coded using NVivo qualitative data analysis software Version 8 (QSR International 2008) and an iterative coding procedure (Miles and Huberman 1994), refining our hierarchical coding structure through three rounds of coding. Our results capture the recurrent themes and poignant insights that emerged from this systematic analysis of our qualitative interview dataset.

Results

Hunting Practices

Interview participants all started hunting at a young age. They had shot their first deer between ages seven and 13. Most had been involved with hunting at an earlier age, as early as 5 years old, observing the butchering of deer, listening to hunters plot their day's hunting strategies, scouting hunting locations and deer movements and walking with older hunters during deer drives (a common technique where a group of hunters walks through the woods pushing deer to other hunters waiting to shoot). All of the interview participants stated that white-tailed deer was the primary species they hunted, but most also harvested other animals including fur-bearers (e.g., muskrat, beaver, martin), small game (e.g., ruffed grouse, ducks, snowshoe hare, porcupines) and fish.

The primary motivation for hunting was for food. The hunters appreciated the fact that venison is a healthier alternative to commercially available meats. Unlike store bought meats, they knew exactly where their venison came from, that it was processed cleanly and that the deer ate a natural diet free of hormones and other chemicals. Venison was a traditional food dating back thousands of years in the community; hunting and eating venison therefore helped to maintain an important cultural tradition. Several interview participants stated that at some point in their lives, venison was a survival food because they had limited finances for providing basic needs such as food for their families. Other reasons people hunted included camaraderie and time with family/friends, family tradition and enjoyment of the outdoors.

The deer meat hunters harvested was not just for consumption within their own households. Each of the hunters mentioned they also hunt to provide meat to other people in their extended families, typically giving away as much as they kept for themselves or far more. They shared deer meat with their elders, with households that did not hunt and with single mothers. The number of deer harvested and consumed within the individual hunters' households ranged from 5–12 per year and the average household size was five people. However, the number of deer harvested by the hunters was often far greater because they were providing meat for several households. Average total harvests ranged from 12 to 30 deer with some hunters harvesting more than 50 deer in high years.

Hunting typically occurred in the fall. Local traditions dictated that it was permissible to begin hunting once fireflies emerge in mid-summer. Several participants noted that they respect this traditional indication of the start of hunting season but that they do not actually start hunting until later, whenever last year's venison stock runs out. One hunter

stated, “[I start hunting] whenever the deer meat runs out. I don’t look at my deer rifle until my freezer doesn’t have any more deer meat in it. It’s a good supply of meat for me and my nephews...”

Not all LDF hunters own freezers for storing meat. Some LDF families use a deer immediately after it has been harvested, which was more common historically in the community. They keep enough meat for a few meals in their household and give the rest away to relatives for their immediate consumption or short-term storage.

Most of the hunters finished the bulk of their hunting by the beginning or end of the state-administered gun-hunting season, which runs annually from November 20–28. Those who finished hunting by the start of the state season cited safety concerns and did not like to hunt around hundreds of non-Indian hunters who occupy the woods during the nine-day state-administered hunt. Those who stopped hunting by the end of that same state gun season did so because the weather becomes too cold and unpredictable starting in December.

Three individuals mentioned that they occasionally bow hunt. The rest exclusively use high-powered rifles. Calibers of choice included 30.06, .308, .300 Winchester Magnum and 30–30.

Interview participants hunted both on and off their reservation with some concentrating their efforts on-reservation and others off-reservation. Those who hunted off-reservation varied in their locations. Some had specific areas they hunted every year, and others spread themselves out more to varying degrees. Two people noted they had hunted throughout all areas of their tribe’s ceded territories (Fig. 2) at one time or another. Others noted they tend to stay within about a 30–40 min drive of their home to limit their fuel expenditures. Several people stated they hunt primarily off-reservation because they want to preserve on-reservation hunting opportunities for people who have limited funds for gas money or do not own vehicles.

The hunters used a variety of techniques to harvest deer. The most common techniques were drives (pushing deer) and hunting from a vehicle (a.k.a. road hunting). Driving deer was a long-standing tradition in LDF and was the method most interviewees first learned as young people. The advantages and benefits of this technique are that hunters encounter a lot of deer, they use less fuel than with road hunting and it is a social activity that brings family members from multiple generations together. It also requires more skill and gets the hunters out in the woods paying attention and learning about their surroundings. Road hunting is a common practice because it is an efficient use of time and relatively easy way to harvest deer. Road hunting occurs during the day and at night via spotlight. Night hunting is only permitted on-reservation. Other techniques used by the interview participants included still hunting from stands or

blinds, stalking deer, using dogs to circle deer around to standing hunters and hunting stream and river bottoms by canoe.

Traditional Values

The hunters described a wide range of circumstances where hunting practices were apparently influenced by moral judgments that related to family-held and community-held traditional values. They explained how these values and judgments framed their hunting practices, their perspectives about hunting and their perspectives about white-tailed deer. To provide some organizational structure to these interrelated traditional values, judgments and morally influenced practices, we describe them roughly in the order that they are first introduced or taught to young hunters by their older family members. This order also follows roughly the sequence of events for hunters in a given hunting season. Every single hunter from LDF does not uphold the values, judgments and practices described here; however, these are the recurrent themes that emerged in interviews with 14 of the community’s most active hunters.

One of the first hunting-related values imparted to young people in LDF is hunting safety. Young people are taught proper safety techniques through repetition and over the course of several years by spending time going along on hunts and participating in deer drives prior to earning the rights to carry a weapon or harvest a deer. During this training phase, young hunters are also taught to respect the woods by being mindful of other beings (animals, plants, spirits) that live there and conducting themselves in the woods as if they were in someone else’s home. Some hunters are taught to give tobacco as a gift to the beings that reside in the woods before they enter to hunt (more discussion on tobacco use below). LDF notions of respect for the woods also involve leaving the woods the way you found it by not littering. Further, young people are instructed to pay close attention to their surroundings when they are hunting. This helps them learn their way around the woods and provides a measure of safety by keeping hunters’ attention on the task at hand. One respondent stated, “My [grandfather] raised me, so I came into his generation [doing] what he used to do. I was always in the woods with him. He showed me everywhere on the reservation what I needed to know or see. He made me go into the woods. He said ‘you look around when you’re in there; you don’t just go rushing through there.’” We also interviewed this respondent’s son, who similarly shared that he was instructed to “Just be aware of my surroundings; know where you are at all times, what you’re doing, why you are there.” The continuity between these quotes and the father’s reference to learning from his grandfather showed that this value had been transferred across at least four generations.

Young hunters are then taught ways of showing respect to the deer that they intend on harvesting or have just harvested. For some hunters, this begins with *taagoziwin* (talks) that are a sort of prayerful conversation a hunter has with deer before or after a hunt. Through *miigwetchitaagoziwin*, a hunter makes a speech of thankfulness to the animal/spirit world, showing appreciation in advance or after a harvest. *Gaagiizotaagoziwin* are speeches of appeasement to an animal and its spirit. Originally *taagoziwin* were spoken prayers using *Anishnabemowin* (the original language of Ojibwe people). People who do not speak *Anishnabemowin* often go through a similar process using the English language and many do so mentally rather than aloud.

All the hunters also used *Semaa* (tobacco) as a way to show respect for deer. *Semaa* (pronounced ‘say-mah’) is one of the most important traditional medicines used by Ojibwe and many other American Indian peoples. It is often used as a traditional gift given as a sign of respect to people or harvested animals (Johnston 1976; Benton-Benai 1988; Cornell 1992). *Semaa* is often put on the ground with a prayer before the beginning of a hunt. It is offered to a deer after it is harvested and before it is gutted. During disposal, it is placed on the gut pile or with any unused body parts. Ojibwe people believe strongly in a spiritual realm and that all living things have spirits that exist in this parallel world. Ojibwe are taught that *Semaa* is a wonderful gift to offer spirits and that a small pinch of this medicine is regarded as a large gift in the spirit realm. Hunters who use *Semaa* as an offering are making a gift to the deer on a spiritual level. The use of *Semaa* was noted as one of the most common and consistent ways traditional values enter into hunting practices in LDF and is a practice consistently taught to young hunters.

Hunters from LDF also show respect to deer by hunting sober. For Ojibwe, to drink during or before a hunt or while butchering meat would be disrespectful to the deer. Hunting is considered a sacred activity and Ojibwe people are taught not to use alcohol or drugs during such times. The other reason people from LDF maintain sobriety during hunting and while processing meat is for safety, which, again, is a primary traditional value for LDF hunters.

Furthermore, youth are taught to respect deer by processing harvested animals and handling meat respectfully. Lac du Flambeau hunters believe they should be mindful of the life that was given by the deer when they are gutting, butchering and disposing of unused parts. This mindfulness reminds hunters that wasting deer meat or other useful parts would be disrespectful to the spirit of the harvested animal. Handling the deer carcass and disposing of unused portions should be done in a way that maintains dignity for the deer’s spirit. The gut pile and any other unused portions are placed in the woods out of plain site and covered with leaves or fern fronds plus an offering of *Semaa*.

Techniques for butchering deer meat are passed down inter-generationally within LDF families. Hunters from LDF are skilled with a knife, butcher deer very rapidly and take great care and pride in the cleanliness and efficiency of their butchering (i.e., lack of waste). One interviewee described the uniqueness and importance of skinning and butchering deer at LDF, stating:

“If there's anything to be passed down here in Flambeau it's a specific way to clean deer. Cause if you see a carcass laying by the road you know who did it just by looking... at the deer dump... if you look at it, you know where that cleaning originated, from the way the deer was taken care of. It's pretty amazing. In terms of things being passed down, I think a big thing is how to cape that deer out... get the cuts, you know... clean that deer really good. There's three or four different styles that people do around here. And they all stem from four different elders. That's a real amazing thing ‘cause they're all wonderful ways. I do it the way my Mother showed me how. Efficiency and quickness, that's what Ojibwes are good at when it came to cleaning these deer up. And that's one of the main things that were passed down.”

Early on in the hunting season, while does are still weaning their fawns, LDF hunters harvest deer selectively. They leave does and fawns and focus on yearlings (i.e., year and a half old deer) and bucks. People generally do not shine for deer (i.e., road hunting at night with a spotlight) in the summertime because they do not want to accidentally shoot a doe and risk orphaning any fawns. In the fall, LDF hunters harvest whatever deer presents itself first, irrespective of sex or age. Hunters from LDF were not enamored with the idea of harvesting a large trophy buck. Most admitted that seeing and harvesting a large buck is exciting, but they are not focused on finding large bucks with big racks when they hunt; the focus is on harvesting meat as a nutritious food source.

However, not every household has an active hunter, so most hunters in LDF are providing deer meat to multiple nuclear families. One of the primary traditional values held by LDF hunters is the subsistence value of sharing meat. Every interviewee described responsibilities they had to provide meat to other households within their extended family. For some hunters, the primary reason they hunted was to provide deer meat, fish and other harvested foods to those in need within their family and wider community. This is a generous act considering the amount of time and work involved in locating, harvesting and processing deer.

This generosity starts at a young age. When a person from LDF harvests their very first deer, the entire animal is traditionally given away. There is a ceremony young hunters go through after their first successful hunt called the First

Harvest Ceremony. During this ceremony, adults from the youth's family and broader community talk to them, providing important guidance about safety, respect, and other communally held hunting values.

For some hunters in LDF, the tradition of giving away the first deer you harvest is practiced annually. Hunters also have responsibilities for providing meat for ceremonies that come up throughout the year including funerals. They keep meat on hand for these ceremonies and community events and/or they are prepared to harvest deer as needed for these purposes throughout the year.

The generosity of LDF hunters is repaid to them when they get older. When a hunter reaches an age where it becomes difficult to drag, gut and butcher deer, the young hunters who they have trained in turn begin taking responsibilities for these labor-intensive tasks. When a hunter reaches an age when they can no longer hunt, it becomes the responsibility of the younger hunters in their family to provide them with deer meat and other gathered foods. To fail to provide meat to an elder who spent time teaching you all the skills and knowledge necessary to be a successful hunter would be disrespectful and unacceptable.

Young hunters are also taught to respect certain communally held taboos, or things they should never do because it may result in serious consequences. The consequences of violating these taboos can include lack of success in future hunts as well as illness, misfortune or death in one's family, depending on the severity of the violation or whether the violator knew better. Taboos include prohibitions of greed (i.e., shooting more deer than necessary for food) and wastefulness; one should try hard never to wound an animal; and should not shoot deer near one's own home. Shooting deer near one's home is frowned upon because LDF Ojibwes believe white-tailed deer that come by their home could be the spirits of deceased relatives coming to visit. Within some LDF families, the notion of stocking up enough deer meat in a freezer to last through the year comes close to violating the taboo of harvesting more than is needed, leading them to follow the practice of immediately using their harvests. For others, freezing meat is an acceptable way of ensuring a year's food supply.

Another important taboo is harvesting and/or eating one's clan animal. The Ojibwe, like other North American Indian cultural groups, have a clan system of kinship that dictates traditional roles and responsibilities in a community and historically was an important organizing framework for inter-community marriage (Johnston 1976). Each larger tribal or cultural group has a different set of clans, represented primarily by different species of animals. For Ojibwe people, these include loon, fish, deer, bear, crane, martin, and bird clans (Benton-Benai 1988). A person's clan animal is considered very literally to be their brother or next-of-kin, which is why it is not acceptable to harvest or eat an animal

from the species representing one's clan. In LDF, most people are bear clan and very few people are deer clan. This means most people are free to consume deer meat but prevented from hunting or eating bear.

Each of the hunters had spent a great deal of time learning about and harvesting deer in their lifetimes. We asked them to describe the relationship they had developed with deer through these years of pursuing and eating deer. Their responses summarized well the traditional values they held related to hunting. All of the hunters described having a great deal of respect for deer. They appreciated the versatile attributes of the deer (e.g., they are fast yet quiet in the woods, resilient, possessing a quite intelligence, have great senses of smell and hearing, hide well and are patient.) They described the deer as put on Earth to feed people and an amazing source of food. The hunters described their great appreciation for this food source and for the deer that give their lives to feed people. One hunter described this relationship, stating:

“My relationship with deer meat is... no man could ask for a better one. The deer are a great source of food and they're a great animal and they'll feed me for the rest of my life. Just to eat one is an honor, and for him to give his life to feed me is one of the greatest gifts you can ever receive... I wish I could give my life up to feed one of them but I can't, but who knows, one day when you're pushin' up daisies maybe one'll eat off my grave.”

Another hunter stated that when he puts down *semaa* for a harvested deer, it is the same as when he puts down *semaa* after a community member dies. In that way, he regarded deer similarly to the people in his community, except that the deer have a different role, which is giving their life to feed the people. Describing his level of respect for deer and deer-human relations, one hunter noted that when he speaks about hunting, he does not refer to the culmination as “killing” which is too harsh of a word. In *Anishnabemowin*, a phrase used to describe what happens when a hunter is successful is *nin gii nisaa a'aw waawaashkeshii*. In English this translates approximately to “I did take that deer's life.”

Continuity in LDF Hunting Values

The hunters expressed that a core group of youth in the community was continuing to learn the LDF hunting values system outlined above. Most of the interviewees actively participated in educating younger generations about hunting and associated traditional values. They acknowledged that a small percentage of the LDF youth are hunting in ways that disregard this values system by being wasteful, focusing on trophy bucks and using drugs or alcohol while hunting. They felt that most of these young people were not raised

on the reservation, but moved to their tribal homelands after growing up in the city where they had limited opportunities to learn LDF hunting values. Others were being raised in families without adult hunters and had not sought out or connected with people who could teach them LDF ways of hunting. In either case, these self-taught hunters were in the minority and respondents felt confident that two or three generations in the future, hunters in LDF would be operating under the same values system. At the time of our fieldwork, educational programs were in place in the tribal and public schools to help teach LDF hunting-related values to youth who were not learning these values at home.

Hunters explained that certain hunting practices had changed in recent decades or were in a transition phase. For example, there were more hunters at the time of our interviews who exclusively road hunt than at any time in the past. There is a difference between hunters who first learn how to hunt through drives and later adopt road hunting as compared to individuals who only know how to road hunt. Hunters who first learn to hunt on foot learn about the woods and learn about deer so that if they later choose to road hunt, they do so given an existing foundation of hunting knowledge. The most recent generation of hunters includes a small but growing number of people who only know how to hunt from vehicles and have comparatively little knowledge about deer or forests.

The introduction of satellite television and Internet service on the reservation also generated some changes in hunting practices, particularly among the youth. Young people had recently gained access to trophy hunting shows and were learning techniques and perspectives about hunting from non-Native, recreational hunters through these shows. For example, a few respondents expressed concern over the adoption of remotely triggered trail cameras, because they allow hunters to stay indoors and reduce the amount of time they spend outdoors, scouting and learning about the woods. One hunter disapprovingly called this technique “window shopping.” Other technological innovations that had been adopted earlier in LDF, such as high-powered rifles and hanging poles used for processing deer, were of less concern to the hunters. One respondent explained, “We’re accepting of change if it allows us to do our things more efficiently. But along the way we also have to maintain our traditional ways, the original ways of doing things...”

A more serious concern was the influence hunting shows could have on people’s perceptions of deer. The hunters expressed concern that the hunting shows teach a trophy hunting mentality that is antithetical to LDF values. The trophy hunting shows emphasize the thrill of getting the biggest possible deer; the adventure sports side of hunting where landing a trophy and breaking records is more important than harvesting food. Some of the LDF hunters shared that they do not watch these shows and advise their

children not to watch them. Interestingly, the youngest two respondents (approximate ages were 18 and 30) said they watched hunting shows, but did not feel it interfered with their values or perspectives on deer; they saw it purely as entertainment.

Discussion

Our results suggest that the LDF Ojibwe subsistence hunting system includes a traditional moral code that helps hunters make moral judgments and influences their hunting practices. Hunters utilize many techniques and modern technologies to accomplish their goals. Though hunters expressed some specific technology-related concerns, they do not believe the use of technology alone is eroding their traditional hunting-related values. A small portion of the community hunts, but each hunter harvests a large number of animals and disperses them among their extended family, maintaining deer meat as a staple food throughout the community.

Similar to results from work with other U.S. tribes (McCorquodale 1997; Guilmet and Whited 2002), the primary focus and purpose for LDF hunters is gathering meat. Besides explicitly stating it as their main motivation, it is clear from how hunters emphasized appreciation for venison and respect for deer. This focus on meat is important because it underlies, and likely shaped, the several thousand-year-old relationships between Ojibwe people and white-tailed deer.

Our results indicate that LDF hunters harvested a lot of deer. Hunters accounted for predictable deer meat needs in their extended family and unanticipated needs in the community (e.g., for funerals, feasts, etc.) in determining their annual targeted harvest levels. The hunters felt a moral obligation to provide meat to elders in their family who could no longer hunt, especially those elders who taught them how to hunt. They also provided meat to sisters who were single mothers or who married non-hunters. When community members hosted feasts for funerals or other gatherings, they would visit hunters from the community and solicit fish or deer meat. Fulfilling community obligations gave the hunters personal satisfaction and kept them in good moral standing within the community.

Despite occasional reports of wasteful practices and concerns among non-Indians about over-harvesting by tribal citizens, the LDF Ojibwe people remain committed to wild-life conservation. Wasting meat is considered taboo in the community owing to beliefs in the consequences that could result from being wasteful or greedy. Similar to Cree people farther north (Berkes 2008), the hunters used more parts of the deer than is typical of non-Indians. They ate the ribs, neck roasts, shanks, neck bones and backbones. Some saved

the hides, antlers, hooves and other parts for community members who use them for traditional regalia and other purposes, but many people discarded these parts.

Historically, all parts of the deer had a use. However, the popular idea that, historically, Ojibwes and other American Indians used all parts of every harvested deer is likely a romantic exaggeration. Tribal members have adopted Western medical practices as well as modern clothing and shelter, significantly reducing the demand for non-meat deer parts. Nevertheless, the people of LDF retain their knowledge about these traditional uses. For example, traditional medicine practitioners use deer parts for medicines and many tribal members use them in ceremony and for constructing material cultural items such as traditional regalia.

Unused portions of deer are typically placed in the woods or in a field, covered with ferns and an offering of *semaa*, and left for consumption by eagles, wolves, coyotes and other wildlife. Hunters from LDF view this as a form of sharing with these other animals. But some non-Indians construe the act differently, thinking deer are being wasted or treated disrespectfully. When the tribe had received complaints about this sort of activity, it was typically from vacationing families who visit the area seasonally. Permanent resident non-Indians were more understanding.

Considering the central role of venison in their diet, Ojibwe people owe a great debt of gratitude to deer. For thousands of years, deer have given their lives as a consistent food source to Indians. Deer meat has forestalled starvation in difficult years. Various body parts from deer have been used as medicine to remedy illnesses and the food value of meat is in and of itself considered a form of medicine or spiritual nutrition (LaDuke and Alexander 2004).

In return for these gifts, Ojibwe people regard it as their responsibility to take care of the land in such a way that it continually supports white-tailed deer and other interdependent biota. They reciprocate and nurture their relationship with deer through their land tenure practices and by showing respect through moral judgments and actions (Table 1). Respect begins with preparatory actions including a long training process, offerings of tobacco, and practicing *taagoziwin* (talks). These practices involve moral judgments associated with broader, traditional values (Table 1). Other authors (e.g., Tanner 1979; Berkes 2008) have documented similar practices of showing respect to animals.

According to the LDF hunters and others (e.g., Johnston 1976), shooting an animal, and all the processes surrounding hunting, are considered serious as well as sacred activities. These moral judgments (the sacredness and seriousness) and associated values are evident in LDF Ojibwe hunting practices. Within an Ojibwe belief system, all life ultimately comes from The Creator, and taking the life of a deer is therefore considered a sacred process. For the Ojibwe, deer

and humans have the same creator and are related in a familial sense (Johnston 1976; Benton-Benai 1988). Hunters pray to deer and give tobacco and other offerings throughout the process from preparation to butchering and disposal of unused parts. They avoid using alcohol while hunting or butchering as a safety measure and means of respecting the sacredness of life and hunting.

Furthermore, LDF hunters believe deer willingly give themselves up to hunters, so long as hunters show them continual respect. Other authors have found similar beliefs among culturally related northern Aboriginal peoples (e.g., Brightman 1993; Berkes 2008). Hunting should be taken very seriously because deer willingly give themselves up, thereby making the ultimate sacrifice in order to feed people. A hunter must therefore be prepared and attentive to avoid injuring a deer. To injure a deer disrespects the deer's life and the gift of life they have offered to the hunter, so Ojibwe are taught to be careful not to inflict non-fatal wounds. Injuring a deer can result in repercussions for the hunter or their family, such as unsuccessful hunting in the future or illness. These potential consequences for injuring a deer as well as the hunters' respect for deer (respect for its life and respect for their relationship with deer) influence their judgment to use rifles rather than archery equipment.

The LDF hunters' decision to use rifles was influenced by traditional values and involved traditional moral judgments to hunt efficiently and not to wound deer (Table 1). The hunters value subsistence efficiency, and occasionally adopted new technologies that can improve their ability to meet subsistence objectives. This result parallels findings in other tribal communities (e.g., Condon *et al.* 1995). Just as chainsaws cut wood better than crosscut saws, and steel works better for axe heads than stone, rifle hunting is a more efficient technique than bow hunting. Bow hunting involves a greater amount of preparation and is a still-hunting technique where hunters typically wait in one spot for passing deer. Rifle hunting for LDF Ojibwe, in contrast, is a mobile process where hunters either push deer to shooters via deer drives or road hunt from vehicles (motor vehicles represent another adopted hunting technology that increases subsistence efficiency). These rifle-oriented techniques produce more deer in a shorter amount of time. Lac du Flambeau hunters noted that using these techniques leave them with more time at home with family and for taking care of other non-hunting responsibilities. Hunters cited similar rationale for adopting hanging poles, which accelerate skinning and butchering.

Furthermore, Ojibwe hunters' used rifles because they cause fewer non-fatal injuries to deer than any other weapon. Although archery equipment is deadly, the LDF hunters have observed that bow hunters inflict more non-fatal injuries to deer than rifle hunters. Ojibwe traditional values guide the moral judgment not to risk injuring deer. Looking

Table 1 Various Lac du Flambeau Ojibwe hunting practices and the associated traditional moral judgments and values that inform these practices, as expressed in interviews with hunters

Hunting practices	Moral judgments	Associated values
Start of hunting season	Should not hunt unless you need the meat; Should not shoot deer during breeding season	Respect for deer; reciprocity (deer)
Sober hunting	Should not desecrate what is sacred; should not risk wounding a deer or a person; pay attention to what you're doing	Safety; respect for deer; respect for sacred acts
Using rifles	Should not wound a deer	Subsistence efficiency; respect for deer
Location of hunts	Save on-reservation deer for other people; should not hunt close to your home; make use of ceded territories	Kinship; subsistence efficiency; tribal rights
Deer drives	Harvest what you need quickly to save time for other responsibilities; spend time on the land getting to know the places where you hunt; spend quality time hunting with family members	Subsistence efficiency; relationship with place; camaraderie;
Road hunting	Harvest what you need quickly to save time for other responsibilities	Subsistence efficiency
Killing does vs. bucks	Should not orphan a fawn	Respect for deer; reciprocity (deer)
End of hunting season	Avoid crowded hunting; avoid unnecessary exposure to frigid temps; should not overharvest	Safety; subsistence efficiency; conservation; respect for deer
Training process	Show respect to deer; be safe by being prepared and well-trained	Respect for deer; safety
Tobacco use	Show respect to deer and the places where you hunt	Respect for deer; respect for place; reciprocity
<i>Taagoziwin</i> or 'talks'	Show respect (give thanks/ask forgiveness or permission) to deer	Respect of deer
First Harvest Ceremony	Give away your first deer; learn from knowledgeable hunters	Importance of hunters; preserving communal hunting knowledge; generosity
Freezing/not freezing meat	Should not hunt unless you need the meat	Reciprocity and respect for deer vs. convenience
Disposal of unused deer parts	Show respect to deer; share deer harvest with non-human relatives	Respect for deer; reciprocity (deer); kinship (other animals)
Sharing meat with (human) relatives	Share meat with family members who do not/cannot hunt; share meat with those who taught you to hunt	Kinship; reciprocity (people); generosity
Use all the meat	Should not waste; Should show respect to deer	Conservation; subsistence efficiency; respect for deer

at the decision to use rifles in this way, with a focus on traditional values and moral judgments, reframes the issue of whether adoption of modern of technologies makes hunting non-traditional. Hunters at LDF chose to adopt a modern technology based on traditional values and morality, which are parts of the community's longstanding TEK.

Indian hunting critics often focus on the origins of hunters' technologies (e.g., Krech III 1999; Gaard 2001; Kemmerer 2004; van Ginkel 2004). They find an incommensurable disconnect between contemporary individuals who employ modern technologies and their ancestors' "storied" pre- and early post-European contact pursuit of animals. The critics who focus on Indian hunters' technologies are presumably judging what is or is not traditional based on an undefined, yet somehow still static, Indian ideal. Indians face this problem regularly on all manner of issues, being judged as less Indian or less traditional for not living up to some generic, imagined or remembered, Indian persona (Deloria 1969; Mihesuah 2009; Smith 2009). The mistake is to

assume that traditions are static and that change is the same as invention.

When Indians are only seen through the lens of technology and material-culture, any continuity or traditional aspects that are engrained in some of the more complex and nuanced aspects of tribal socio-ecological systems such as traditional ethics and morality or notions of sacredness and ceremony are ignored. Indeed, the technology hunters use in a given Native community is but one small dimension of the community's overall system of hunting practices (Berkes *et al.* 2000; Peloquin and Berkes 2009; Read *et al.* 2010). Our results suggest an alternative way of understanding what is traditional in the context of contemporary subsistence hunting systems in which people adopt new technologies.

Recently, Alessa and colleagues (2010) published findings that suggest that incorporation of technology can erode traditional subsistence values within TEK systems. The authors advance the hypothesis that, within the context of

Native Alaskan water-associated values, the use of modern technologies has engendered the phenomenon of "Technologically Induced Environmental Distancing." Technology Induced Environmental Distancing occurs when technologies relieve community members of the need to perform certain traditional activities. The authors contend that falling out of traditional practices has ideological ramifications that include the loss of community members' indigenous cultural identity and the adoption of the dominant social paradigm (Alessa *et al.* 2008; 2010). Dominant social paradigm adoption relieves a person or a community's need to perform activities in the traditional ways and changes their subsistence values. According to the authors, "...[Water infrastructure] inserts a filter between people and the resource such that they become distanced from it and this feeds back to affect values, eventually moving them from subsistence- to convenience-oriented ones (i.e., from an indigenous cultural identity to the dominant social paradigm)" (Alessa *et al.* 2010, 255).

The study comes to this conclusion based on results about community members' evaluation of the importance of water. Here, evaluation refers specifically to interviewees' appraisals of the various purposes that can be assigned to water. Though the study picks up new evaluative dynamics (e.g., emergence of the recreational value of water among younger respondents) within western Alaskan villages, its findings of environmental distancing and erosion of subsistence values may be misleading because the authors only investigated a small segment of the belief system component of the Alaskan communities' TEK. The conclusions from these studies cannot reasonably be extended to other parts of TEK systems, such as traditional morality and values, without support by additional research. In certain instances, traditional values and other elements of TEK may be woven into subsistence systems in complex and subtle ways. One concern is that policy makers can broadly and hastily apply conclusions such as Alessa *et al.*'s to erode the rights and standing of Indian tribes.

In our study, we framed subsistence hunting in a way that fits within the social context of contemporary American Indian tribes where mixed economic systems are the norm and most hunters do not pursue animals on a fulltime basis. We also situated the study in the context of TEK and attempted to reframe the debate over whether or not contemporary tribal hunters' activities should be considered subsistence or traditional in nature. There is a need for more comprehensive studies of traditional values and moral codes in the context of subsistence hunting. A better profile of the traditional moral code would show (1) the ways (e.g. maximization, consistency, etc.) that judgments are specifically derived from values and (2) how values are related to one another (e.g. ordering, prioritization, etc.).

Future research on traditional moral codes could generate significant insights into the resiliency of subsistence practices to meta-scale forces. This would greatly expand Shils' concept of "non-substantive traditions," which are those traditions that allow communities to change and adapt. Unfortunately, Shils' examples are confined to notably Western categories such as reason, scientific inquiry and technology development (Shils 1981). Our study suggests that traditional moral codes are transmitted in such ways as to help communities generate innovative practices for the challenges they face. The role of moral codes, judgments and values in relation to resiliency should be explored as a new conception of non-substantive tradition. Furthermore, while previous studies cited earlier have tested hypotheses about epistemological and practical elements of TEK, there is important ground to be explored on the relationship between morality, ethics and adaptation. Knowledge and practices may change due to meta-scale forces; perhaps part of what is responsible for resiliency amid these changes is the traditional moral code, which may inform selective socio-ecological adaptation.

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