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Asserting Tribal Sovereignty over Cultural Property: Moving Towards Protection of Genetic Material and Indigenous Knowledge

By Debra Harry[1] and Le`a Malia Kanehe[2]

Indigenous cultural property of all forms, tangible and intangible, oral and written, ancient and contemporary, is under constant threat from exploitation, theft, misrepresentation, misuse, and commodification. Current domestic law, including federal Indian law, does not sufficiently protect cultural property.[3] Internationally, although the World Intellectual Property Organization (WIPO), the Convention on Biological Diversity (CBD), United Nations Educational, Scientific and Cultural Organization (UNESCO), and a multitude of other international bodies are proposing new measures for the protection of Indigenous peoples' cultural property, these Western-law-based systems are insufficient.[4] Accordingly, tribes must be engaged at all levels—tribal, state, national, and international—to protect their cultural property.[5] However, the only realm within which Indigenous cultural property can be truly protected is within Indigenous peoples' own legal systems. Within these legal systems, Indigenous peoples exercise sovereignty and can develop laws that honor the legacy of our sacred cultural heritage through our own customary and codified laws—not only for ourselves, but also for future generations.[6]

Genetic material and Indigenous knowledge are significant aspects of cultural property that require special protection, especially in this biotechnology era. Scientists have sought Indigenous peoples' DNA on numerous occasions for anthropological, behavioral, medical, and genetics-mapping studies. Bioprospectors are also interested in accessing biodiverse-rich Indigenous territories to find plant, animal, and microbial

organisms for pharmaceutical, chemical, and industrial uses. Genetically modified organisms also pose special threats to Indigenous peoples' traditional food sources, agricultural systems, health, and environment.

Many of the problems that tribes are facing are exemplified in a recent case of genetic research undertaken on the Havasupai Tribe, based in northern Arizona. For several years now, the Havasupai Tribe has been embroiled in the aftermath of unauthorized genetic research performed under the guise of diabetes research.[7] The Havasupai Tribe says that their lives were forever changed when their "sacred blood" was taken from them, by researchers at Arizona State University and the University of Arizona, for what ended up being unconsented research on schizophrenia, inbreeding, and to support the "Bering Strait Theory" of ancient-human migration.[8] In geographically isolated tribes, such as the Havasupai, whose reservation located at the bottom of the Grand Canyon can only be accessed by foot or horseback, some scientists see unique gene pools that represent a "gold mine" for their research.[9] Beginning in 1990, scientists took four hundred Havasupai blood samples to study their high incidence of type-two diabetes, but later used the same samples to conduct unauthorized research on other topics. The Tribe says this further research contradicts their spiritual beliefs and has caused grave emotional distress and mistrust.[10] To shield themselves from further exploitation, the Havasupai Tribe has placed a moratorium on biomedical research on their reservation.[11] The Havasupais's reaction to their experience has been characterized by the lead researcher and defendant, Dr. Therese Markow, as "hysterical"[12] and by *Nature*, a well-known science periodical, as "hypersensitive."[13]

In two separate cases filed in 2004, one on behalf of seventy-two individual tribal members and another on behalf of the Tribe, the Havasupai have brought claims against the scientists, universities, and Board of Regents.[14] Unfortunately, neither case has been resolved, and the Tribe expects a long, and undoubtedly expensive, road of litigation ahead. The situation that befell the Havasupai Tribe exemplifies many of the ways

researchers can disrespect tribes in the course of research, including breach of trust, lack of informed consent, allowing secondary uses of samples with unauthorized researchers and unauthorized publications.

In the United States, tribes exercise sovereignty and retain jurisdiction over their respective reservations. Often, they have also retained treaty rights over aboriginal lands off-reservation. Accordingly, they have the power to create laws that protect the health, safety, and welfare of the tribe and its members on their lands. Therefore, to prevent situations such as the situation that the Havasupai people have endured, this article will discuss how tribes should assert their sovereignty by developing and adopting tribal laws that will control research proposed within reservation boundaries and will protect their cultural property, whether it be songs, artifacts, sacred sites, remains of the ancestors, traditional medicines, Indigenous knowledge about such medicines, or human and non-human genetic material.

Oren Lyons, Faithkeeper of the Onondaga Nation, teaches that "with indigenous peoples respect is a law: without it there is little chance for harmony or community."[15] In many cases of exploitative research on Indigenous peoples' cultural property, a fundamental breach that occurs is a failure on the part of the researcher to respect the tribe, its members, and the members' collective rights to their cultural property.

The purpose of this article is to provide, to tribes faced with an era of genetic research, some guidance about how to establish strong protections over their genetic material and Indigenous knowledge. The first section will discuss why genetic material should be protected as cultural property and will briefly examine why tribes need to be concerned about research involving genetic material and Indigenous knowledge, with a particular focus on human genetic research. The second section will examine a variety of examples of human genetic research on Indigenous peoples. Next, this article will evaluate the power of tribes to pass laws that would regulate the conduct of non-Indian researchers. The fourth section will present several tribal laws governing protection of cultural property and

examine the extent of the protection that they assert over genetic material and Indigenous knowledge, as well as their regulation of research. The fifth section will offer a model tribal law—the Indigenous Research Protection Act—and explain how key provisions help tribes to regulate research. Finally, this article will briefly address important issues raised by genetic research that tribes will inevitably be faced with making decisions about, such as the patenting of life forms and commodification of genetic material and Indigenous knowledge.

Past experience reminds us that good will and/or ethical standards are not sufficient to protect our rights and interests. We must legislate the respect that Faithkeeper Lyons speaks of, so that tribal laws will protect our biological resources and cultural property for future generations.

I. WHY PROTECT GENETIC MATERIAL AND INDIGENOUS KNOWLEDGE?

The past two decades of the biotech age have produced many examples that reveal the exploitation of, and harm to, Indigenous peoples and the biological resources within their traditional territories. This section will provide an overview of several examples of the experiences that Indigenous peoples have faced regarding bioprospecting, genetic engineering, and human genetics research. These examples reveal that much of what is central to Indigenous cultures is in jeopardy of misappropriation and exploitation—namely our cultural heritage passed down over generations, whether it be in our blood, our medicines and foods, or associated Indigenous knowledge. Before delving into the various types of genetic research that tribes need to be prepared to deal with, we must first discuss why Indigenous peoples' genetic material should be conceived of as part of our cultural property and protected under such a legal regime.

A. Protecting Genetic Material as Cultural Property

Genetic material should be considered tribal cultural property and protected as such.[16] Certainly, cultural property does not only apply to Indigenous peoples, and the term has meaning in a non-Indigenous context;[17] however, in this article, we are limiting our discussion to the context in which Indigenous peoples understand cultural property.[18]

In this article, when we refer to "cultural property," we mean it in an all-encompassing sense as "everything that belongs to the distinct identity of a people," which "includes inheritances from the past and from nature, such as human remains, the natural features of the landscape, and naturally-occurring species of plants and animals with which a people has long been connected."[19] United Nations Human Rights Special Rapporteur Erica-Irene Daes defines "cultural heritage."

> The heritage of indigenous peoples includes all moveable cultural property as defined by the relevant conventions of UNESCO; all kinds of literary and artistic works such as music, dance, song, ceremonies, symbols and designs, narratives and poetry; all kinds of scientific, agricultural, technical and ecological knowledge, including cultigens, medicines and the rational use of flora and fauna; human remains; immoveable cultural property such as sacred sites, sites of historical significance, and burials; and documentation of indigenous peoples' heritage on film, photographs, videotape, or audiotape.[20]

In essence, Indigenous cultural property is everything that Indigenous peoples have a relationship with and responsibility to. Special Rapporteur Daes aptly explains that "possessing a song, story or medicinal knowledge carries with it certain responsibilities to show respect to and maintain a reciprocal relationship with the human beings, animals, plants and places with which the song, story or medicine is connected."[21] Therefore, Indigenous peoples' cultural property can be conceived as "a bundle of relationships, rather than a bundle of economic rights."[22]

Although we have chosen to use the term "property," we do not use it in a Western-law sense as something that is "used for the purpose of extracting economic benefits."[23] In an Indigenous understanding of cultural heritage, cultural property rights are rights to property that are held communally; only the group as a whole can consent to sharing the property, and it can never be alienated, surrendered, or sold.[24] If and when it is shared, it comes with conditions.[25]

With respect to genetic material specifically, many Indigenous peoples have said that their genetic material is inalienable.[26] In stark contrast, the prevailing view in U.S. law is that once genetic material leaves a person's body, the law does not recognize a property right in the material for that person.[27] The holding from the California Supreme Court in *Moore v. Regents of the University of California* reveals quite a different view than that of Indigenous peoples regarding property rights related to genetic material. The United Nations Declaration on the Rights of Indigenous Peoples, which is regarded as a minimum standard for the rights of Indigenous peoples,[28] recognizes that Indigenous peoples have the right to maintain, control, protect, and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as manifestations of their sciences, technologies, and cultures, *including human and other genetic resources*, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games, and visual and performing arts.[29]

Many Indigenous peoples have identified a cultural and spiritual relationship with genetic material when examined through a cultural lens. For example, Maori academic and activist, Aroha Mead, of Ngati Awa and Ngati Porou tribal lineage, explains that "the human gene is genealogy. A physical gene is imbued with a life spirit handed down from the ancestors, contributed to each successive generation, and passed on to future generations."[30] Indigenous Solomon Islander Ruth Liloqula explains that "[t]he substance of social identity is the relationship with one's relatives

through blood."[31] Therefore, her people traditionally place great value in knowing and protecting their genealogy and body parts, whether blood, hair, nails, saliva, or placenta.[32] Indigenous peoples have a relationship with DNA akin to that which we have with our ancestors—one of reverence, respect, and responsibility.

Several Indigenous peoples recognize an inherent sacredness in DNA. For example, Navajo elders have expressed that "the threats of genetics are based on the compromising of the sacred." The elders stress that genetic research is not the same as other types of research because it deals with an individual's body parts. The body specimens that are currently used to extract deoxyribonucleic acid (DNA)—e.g., blood, hair, and saliva—are very sacred to the Navajo.[33] With a similar perspective, the National Congress of American Indians (NCAI), the oldest and largest national organization comprising representatives of all the American Indian tribal governments in the U.S., took a stand in 1993 against the Human Genome Diversity Project, which sought to collect blood samples from seven hundred Indigenous groups from all over the globe in the 1990s.[34] The NCAI resolution states, in part, "the taking of blood, hair and tissue samples is an affront to the religious beliefs, cultural values, and sensitivities of many indigenous peoples."[35]

With these cultural understandings in mind, we can now evaluate several different types of genetic research and the potential risks posed to tribes.

B. An Overview of Genetic Research and Concerns for Tribes

There are various types of research involving genetic material that tribes need to be aware of and prepared to deal with. Examples of bioprospecting in Indigenous territories and stories of biopiracy abound, commonly occurring as unauthorized uses of biological resources and/or associated traditions.[36] Plants, animals, or microorganisms found within Indigenous territories are typically taken for commercial purposes and often become the subject of patents over spurious inventions based on such knowledge or

resources.[37] Leads for pharmaceutical drugs are often obtained by gleaning centuries-old Indigenous knowledge about the medicinal and other uses of such organisms. Studies of this type of genetic research indicate that "nearly three-quarters of all plant-based prescription drugs in use today were derived from drugs used in indigenous medicine."[38] Furthermore, use of traditional knowledge in screening plants for medical properties is known to increase the efficiency by more than 400 percent.[39] In order to protect the genetic material within traditional medicinal- and food-providing plants and animals, tribes need to assert their sovereignty by enacting legislation to regulate bioprospecting.

In a different form of genetic research, commonly known as "genetic engineering," scientists are employing a technology known as "transgenics," often employed for agricultural or pharmaceutical purposes.[40] Genetically modified organisms are produced through the isolation of genes from one species that are considered to carry a particular desirable trait, which are then introduced into a different host species.[41]

Genetic engineering raises a number of crucial questions that tribes should be considering. Is genetic engineering consistent with our cultural values? What effects will the genetic engineering of agricultural plants and animals have on our environment? How does genetic engineering impact our community's control and guardianship of the resources and life in our territories? What impact might genetically engineered (GE) species have on the plants and animals that our communities use for food and medicinal purposes? Will genetically engineered agriculture contribute to the social, spiritual, and physical well-being of our communities now and in future generations? What are the community and environmental costs of genetic engineering and who will bear them? How might the consumption of GE plants and animals affect our physical health? What traditional knowledge and community-based food security practices would better benefit from the financial and political support that is currently given genetic engineering

projects? To examine these questions is beyond the scope of this article, but these are questions that tribes need to address head-on.[42]

Two tribal councils in the southwest U.S. have considered critical questions like these and have decided to take a strong stand against this type of genetic technology in their region. For example, in 2006 the Pueblo of Tesuque Tribal Council in New Mexico passed a resolution that, in part, "object[s] to the use and cultivation of GE seeds within range of [their] traditional agricultural systems that could potentially lead to the contamination of [their] native seeds, wild plants, traditional foods, health and cultural property."[43] The Pueblo of Tesuque consider "genetic modification and the potential contamination of our native seeds by GE technology a culturally insensitive and direct attack towards our ancestry, culture, and posterity."[44]

Although bioprospecting and genetic engineering are significant areas of genetic research that tribes need to be prepared to deal with through tribal law, we will focus the remainder of this section on an array of human genetic research. Perhaps in no other field are the concerns for Indigenous peoples so stark and so numerous.

II. HUMAN GENETIC RESEARCH ON INDIGENOUS PEOPLES

Geneticists' interests in Indigenous peoples' DNA are many. Indigenous peoples' DNA has been used in medical, behavioral, anthropological, and genetic variation studies. Indigenous peoples have challenged patents on their genetic material and have struggled to repatriate samples from institutional gene collections. This section will use various examples to illucidate Indigenous peoples' concerns in human genetic research.

In the field of medical genetics research on diseases, Indigenous peoples have been frequently studied for their high rates of diabetes. For example, a geneticist researching the Pima Indians of Arizona, who are said to have the world's highest prevalence of type-two diabetes, once postulated that this condition was due to a unique Piman gene.[45] But scientists now widely

recognize that type-two diabetes is a complex disease that afflicts peoples from all ethnic backgrounds and has many environmental factors, including high-fat, low-fiber, and carbohydrate diets, in addition to a sedentary lifestyle.[46] As biologist Dr. Ruth Hubbard explains,

> all of this research is being done in the hope of finding a predictive test for a 'predisposition' to develop a condition that many people could avoid by changing their diets and getting regular exercise. Surely it would be better to educate everyone about the importance of diet and exercise and to work toward providing the economic and social conditions that could enable more people to live healthily, rather than spending time and money trying to find 'aberrant' alleles and to identify individuals whose genetic constitution may (but then again, may not) put them at special risk.[47]

Unfortunately, Indigenous peoples have experienced exploitation as a result of participating in medical research when genetic samples they provided were later used in non-consensual secondary research. For example, the Havasupai Tribe, discussed at the outset of this article, gave their blood for diabetes research, but later found out it was used for studies on schizophrenia, inbreeding, and ancient-human migration studies.[48] Similarly, the Nuu-Chah-Nulth of British Columbia, Canada, willingly gave their blood, for research on arthritis, to a local university, and later discovered it was used for other purposes that they never consented to.[49] Between 1982 and 1985, Dr. Richard Ward took 883 vials of blood, but he never found any genetic markers for the rheumatic disease that afflicted so many Nuu-Chah-Nulth.[50] Although tribal members expected some results within a year, Dr. Ward never returned, instead using the same samples to study evolutionary history of First Nations at Oxford University in England.[51]

In the field of behavioral genetics, scientists have published studies that propose a genetic basis for high rates of alcoholism among some Native American tribes,[52] while other researchers note that "no evidence currently

exists that the prevalence of alcoholism or its transmission in families can be attributed to unique features of the American Indian gene pool."[53]

Other research proposes a genetic basis to violent and aggressive behaviors in the Maori people in Aotearoa/New Zealand. Dr. Rod Lea, a genetic epidemiologist at the New Zealand Institute of Environmental Science and Research, claims that Maori men have a striking over-representation of monoamine oxidase—dubbed the "warrior gene"—which he says "means that [the Maori] are going to be more aggressive and violent and more likely to get involved in risk-taking behavior like gambling."[54] Lea also notes that high rates of binge drinking and smoking among the Maori are also linked to this gene.[55]

Over-emphasis on genetic causation can bring stigmatization to the groups as being somehow inherently flawed, and it ignores the many non-genetic factors at work.[56] In response to announcements about the "warrior gene," one of Lea's fellow New Zealand geneticists questioned the ethics involved in linking a gene to a race.[57] Furthermore, the Maori themselves were quick to note that the research reinforced stereotypes of violence among the Maori and denounced the "warrior gene" research, citing "social issues, including high unemployment, poor educational achievement, and in many cases severe poverty, to be the main contributors to Maori violence rather than a warrior gene."[58] Indigenous peoples have suffered centuries of colonization and oppression, and thus assertions that certain behaviors are genetically based disregard the impacts that environmental abuses—such as dispossession from land, loss of language and culture, poverty, and associated social ills—have on drinking, smoking, or violent behavior.

The two areas of genetics in which Indigenous peoples are perhaps the most favored subjects are molecular anthropology and human genetic variation. In molecular anthropology, researchers use Indigenous DNA to develop theories of ancient-human migrations.[59] A recent book reveals a multitude of molecular anthropology studies, using the DNA of North

American Indigenous peoples to support various theories on migrations to the continent.[60]

An aspect of anthropological genetics involves the analysis of what is known as "ancient DNA," which is taken from human remains and compared to DNA from contemporary populations in the same geographic area.[61] Because it is seen as a desecration of the ancestors, many tribes take a strong stand against this type of research.[62] The Eastern Band of Cherokee have adopted a law that recognizes the graves of Cherokee people as sacred and specifically prohibits destructive-skeletal analysis.[63] Furthermore, tribes should also be aware that anthropological geneticists may assert theories about migrations and origins that are different than those in which tribes believe, based on our own oral histories.[64]

In the area of human genetic variation, we have seen the development of large-scale projects intent on collecting DNA from Indigenous peoples, such as the Human Genome Diversity Project (HGDP) and the Genographic Project, among others. In 1991, the HGDP intended to collect DNA samples from over seven hundred "isolates of historical interest."[65] In 2005, the National Geographic Society initiated the Genographic Project, a project that intends to collect 100,000 genetic samples from Indigenous peoples around the world.[66] Both projects have been widely criticized by Indigenous peoples due to extensive ethical, social, and cultural concerns.[67]

In the past, Indigenous peoples have also experienced the appropriation and patenting of their genetic material. For instance, in 1994 the U.S. Department of Health and Human Services was granted a patent over the cell line of a Hagahai man from Papua New Guinea.[68] In another instance, the government of the Solomon Islands, in the Pacific, protested a patent application—filed by the U.S. Department of Commerce over Indigenous Solomon Islanders' DNA—and the U.S. Government responded that "[u]nder our laws, as well as those of many other countries, subject matter relating to human cells is patentable and there is no provision for

considerations relating to the source of the cells that may be the subject of a patent application."[69]

Indigenous peoples have often run into brick walls in their efforts to repatriate their own DNA. For example, it took the Nuu-chah-nulth twenty years to finally regain control of the blood samples that they consented to for arthritis research at the University of British Columbia, but which ended up at Oxford University in England.[70] The Yanomami of Brazil have yet to successfully repatriate their DNA, taken in the 1960s, and they certainly could not have foreseen that the samples would still be in use decades later.[71] With little means to hold researchers accountable, Indigenous peoples are often left with little or no recourse once their DNA leaves their territories. One Native attorney warns that tribes need to understand the potential pitfalls of genetic research, including immortalization of cells and the circulation of samples among colleagues, because these common practices make the repatriation of body specimens difficult.[72] Keeping in mind that once genetic materials are provided, in most cases the samples will leave the reservation for university, government, or corporate laboratories, it is therefore essential for tribes to lay the ground rules for use of their peoples' genetic material before the research project commences.

III. ENFORCEMENT OF TRIBAL JURISDICTION OVER NON-INDIANS

Some may question the ability of tribal law to regulate non-Indians, but with properly crafted and implemented codes, tribes can indeed have a strong basis to exercise civil jurisdiction over outside researchers.[73] Under the United States Supreme Court's 1981 decision in *Montana v. United States*[74]—which is the leading case for evaluating tribal civil jurisdiction over non-Indians—the Court held that tribes retain inherent sovereign power to exercise civil jurisdiction over non-Indians in two circumstances. First, "a tribe may regulate through taxation, licensing, or other means, the activities of nonmembers who enter consensual relationships with the Tribe

or its members, through commercial dealing, contracts, leases, or other arrangements."[75] Second, "a tribe may also retain inherent power to exercise civil authority over the conduct of non-Indians on fee lands within the reservation when that conduct threatens or has some direct effect on the political integrity, the economic security, or the health or welfare of the tribe."[76]

In *Montana,* the Supreme Court held that tribes can exercise civil jurisdiction over non-Indians where non-Indians have entered into a consensual relationship with the tribe. If tribes enact a code that requires a contract with researchers setting out the scope and terms of authorized research prior to commencing any research, then the researcher will have entered into a consensual arrangement with the tribe, and the tribe's civil jurisdiction over the researcher will be consistent with *Montana*.

Second, a tribe may assert jurisdiction over non-Indians where the conduct of non-Indians on reservation land threatens the tribe. In a well-crafted tribal code, the tribal council should set out the intent of the act to protect the cultural, spiritual, and environmental welfare of the tribe. Accordingly, the tribe would be able to assert that a non-Indian researcher who exploits cultural property is subject to tribal civil jurisdiction.

Although not directly related to a research scenario, at least one tribe has successfully asserted jurisdiction over a non-Indian defendant where the tribe's power to protect its own cultural property was at issue. In 1976, the Chilkat Indian Village Council in Alaska enacted an ordinance to protect artifacts, clan crests, and other traditional Indian artwork owned or held by members of the Chilkat Indian Village.[77] The ordinance prohibited removal of these cultural properties without the prior notification and approval of the Council.[78] In 1984, several individuals, including Chilkat villagers, removed four carved wooden house posts and a rain screen from the Whale House with the intent of selling the items to a dealer of artifacts.[79] Soon thereafter, the tribe filed suit in federal district court seeking return of the artifacts and monetary damages for their removal, in part basing its claim on

the violation of the tribal ordinance.[80] On remand from the Ninth Circuit, the federal district court found that the Village had the power to pass the ordinance as part of its "retained, inherent power," and that it had the "power to prevent the sale or disposition of any assets of the Village without the consent of the Council."[81] Furthermore, the court found that the "alleged acquisition by a non-Indian of the artifacts . . . would constitute conduct that would have some direct effect on the welfare of the tribe."[82] The district court submitted all issues pending in the case to the Chilkat Tribal Court, which found both the tribal-member defendants and the non-Indian defendant in violation of the ordinance.[83]

Chilkat stands as an excellent example of the ability of a tribe to enforce its own laws to protect its own cultural property against the unwanted acts of both tribal members and non-Natives. It is important to recognize that if the Chilkat Tribe did not have its own ordinance, it may have been left to federal or state court for resolution, and those tend to be less optimal venues for tribes.[84] Particularly in the case of cultural matters, neither federal nor state courts are competent to determine the tribal traditions and customs as a valid source of law in making a determination in favor of tribes. The Ninth Circuit's *Chilkat* decision correctly realized that "[w]hatever the proprietary interest the Village has in the artificats is a creature of tribal law or tradition wholly unconnected with federal law."[85] The tribal court heard a significant amount of testimony from tribal leaders, elders, and others about the cultural importance of the Whale House artifacts to the entire Tribe,[86] which eventually led that court to conclude that the items fell within the parameters of the tribal ordinance.[87]

IV. TRIBAL LAWS GOVERNING TRIBAL PROPERTY

Tribes have employed varying strategies to assert sovereignty over their cultural property. Some have issued declarations, others have adopted policies or guidelines; some have enacted codes or ordinances, while others have developed model contracts; and still others have litigated to protect

their rights and interests. Tribal laws are best suited to incorporate the spiritual and cultural beliefs of tribes in a manner in which Western law fails.[88] In a recent study of 193 tribal codes by Angela Riley, professor and Justice of the Supreme Court of the Citizen Potawatomi Nation, approximately one-third (sixty-two) of the tribes were found to have programs dedicated to cultural-resource preservation, such as native-language programs.[89] Far fewer (twenty-seven) had laws that covered tribal cultural property, such as protection of sacred sites and gravesites.[90] Only three tribes had passed specific laws to preserve traditional knowledge.[91] Riley's report found that none of the surveyed tribes had enacted laws governing ownership and control of intangible properties such as stories, dances, or folklore.[92] Keeping in mind that there are over 560 federally recognized tribes in the U.S.,[93] this study is certainly not exhaustive, but it is nonetheless a substantial review that is likely to be very indicative of the current status of tribal laws governing cultural property. Similarly, we have found that very few tribes have adopted measures to specifically address the protection of genetic material and related Indigenous knowledge.

The following section reviews tribal codes that specifically protect biological resources as cultural property.

A. Existing Tribal Laws Governing Cultural and Biological Material

The Confederated Tribes of Warm Springs of Oregon passed a tribal code for the protection and management of archaeological, historical, and cultural resources.[94] At the outset of the Protection and Management of Archaeological, Historical and Cultural Resources Code, the Tribe sets out tribal policy and intent to manage ancient and contemporary cultural use sites and materials, which may include traditional foods and other natural resources.[95] The law protects "cultural material," defined as "materials or objects designated by the Tribal Council as having cultural significance."[96] Accordingly, as part of the Code, the Tribe designates a non-exhaustive list of cultural materials, including eagle feathers, fish, game, roots, berries,

cedar bark, Indian medicines, and water as having special significance.[97] The Code prohibits removal of protected objects from tribal lands without a permit issued by the tribal council.[98] This tribal law also prohibits the sale, purchase, exchange, transport, receipt, or offer to sell, purchase, or exchange any protected object without permission from the tribal council.[99]

In a similar manner, the Snoqualmie Tribe protects "cultural resources," which are defined as "native plant material, objects, or cultural or religious sites which are nominated or determined eligible for the Snoqualmie Register as having cultural significance. Cultural materials may include, but are not limited to, such things as roots, berries, barks, and Indian medicines."[100]

The Snoqualmie Ordinance also established a Cultural Preservation Board (CPB). One of the responsibilities of this Board is to review any proposed undertaking that might affect any cultural resource, including but not limited to, religious sites, archaeological resources, burial sites, human skeletal remains, traditional cultural properties, historic resources, cultural items, food, and medicinal plants located upon protected lands,[101] which are reservation lands and off-reservation fee lands. The Board is also authorized to participate in the review or permitting process of an undertaking or project that might affect off-reservation cultural resources, including food and medicinal plants.[102] This Ordinance firmly asserts tribal sovereignty—even in reviewing projects that occur off-reservation through the CPB—over activities that may impact traditional food and medicinal plants, such as genetic research.

The Snoqualmie Ordinance strongly indicates its intent by stating that "the self-governing capabilities, political integrity, health and welfare, and economic security of the Tribe will be enhanced and protected by the Tribal governmental control, regulation, and preservation of irreplaceable cultural resources, which are essential to the continued well-being of the Snoqualmie People and will be maintained and enriched for the Tribe's future generations."[103] If the Tribe's jurisdiction is ever at issue, this clear

language will certainly aid the Tribe to assert its power to regulate a non-Indian researcher, consistent with the *Montana* case discussed in Section III.

While the Warm Springs and Snoqualmie Tribal Codes do not specifically mention genetic material, they do refer to "Indian medicines," and list various plant and animal species as protected cultural material.[104] Researchers are particularly interested in Indigenous peoples' traditional knowledge about plants with proven medicinal values, as well as isolating the genes within those plants that produce the active compounds.[105] Therefore, it is essential for tribes to protect both the plants and the knowledge. It is also important to remember that any protection of a species does not necessarily protect the genetic makeup of that species; this is because researchers claim to discover, isolate, or purify genetic material so they can claim innovation for purposes of securing patents.[106] Accordingly, because the collection, analysis, and use of genetic material is often the subject of research, it would be wise to take deliberate action to specifically protect genetic resources.

In 2004, the Little Traverse Bay Band of Odawa Indians ratified an act prohibiting the patenting of organisms, and that act is one of the few tribal codes that has specifically addressed the protection of genetic material.[107] Under this tribal law, "no person may patent or claim any exclusive property interest in the makeup of any organism" within areas under tribal jurisdiction.[108] In the preambular section of the act, the Tribe found that "the patenting of organisms threatens the Tribe's health, welfare and economic security" because it "threatens the loss of biodiversity by limiting access to genetic variants through enforcement of proprietary rights and encouraging the spread of a single variant of an organism in place of other natural variations."[109]

B. Existing Tribal Laws Governing Human Subject Research and Intellectual Property

A handful of tribes have adopted codes and/or protocols to govern human subject research within their territories. For example, the Navajo Nation and Cherokee Nation have established institutional review boards responsible for evaluating and regulating human subject research involving tribal members. The Navajo Nation Human Research Code requires that prior to any human research within the Tribe's territorial jurisdiction, a researcher must apply for and receive a permit from a research review board.[110] The Code established the Navajo Nation Human Research Review Board, which has the power to review and approve or disapprove research proposals.[111]

As addressed earlier during the discussion of *Montana*, the Navajo Code squarely addresses the issue of tribal jurisdiction over researchers and asserts its sovereign power to do so. The Code requires a researcher to agree to the civil jurisdiction of the Navajo Nation with respect to both the research to be undertaken and any publications arising from such research.[112]

The Navajo Code is particularly strong in protecting the Tribe's intellectual property in the research and controlling the inevitable publications that are generated. For example, it is Navajo policy that "[r]esearch information and data generated by and about Navajo individuals, communities, [and] culture represent inalienable intellectual properties of the Navajo people."[113] The Navajo Nation has mandated that all data and research subject to the Code are the property of the Nation.[114] The Research Review Board is vested with power to review and approve all presentation materials and manuscripts, including theses, dissertations, and abstracts, prior to publication.[115]

V. A MODEL TRIBAL LAW

In September 2000, the Indigenous Peoples Council on Biocolonialism (IPCB)[116] announced the release of the Indigenous Research Protection Act (IRPA),[117] a model ordinance developed by the IPCB to help American Indian tribes protect their peoples and resources from unauthorized research;[118] to reduce the adverse affects of research on the Tribal community;[119] to ensure that researchers recognize Tribal control and ownership of all information generated or produced by the research;[120] and finally, to establish a statutory basis for the governance of research within their jurisdictions.[121] Native American attorneys who serve on IPCB's staff and Board of Directors developed IRPA, incorporating elements of existing tribal codes, model codes, and ethical guidelines.[122] The revised IRPA builds upon IPCB's previous work by expanding the provisions that specifically address issues raised by biotechnology, particularly the protection of genetic material and Indigenous knowledge.[123] IRPA contains provisions that are probably not included in most existing tribal legal codes on cultural resource protection, but that need to be considered in the area of genetic research, including access to, and protection of, both non-human and human genetic material.

A. Indigenous Research Protection Act

IRPA encourages the development of a tribally established Research Review Committee (RRC) that is a voluntary or non-voluntary body charged with review, oversight, and liaison between the researcher(s) and the tribal community and governing body. The RRC would develop processes and procedures that ensure protection of both the individual members and the collective tribal rights and interests in research. This would include procedures to ensure informed consent; to protect privacy; to govern the extraction, use, and disposal of bodily or other biological materials; to restrict any unauthorized secondary research; to protect tribal intellectual property over the research findings; and to ensure benefit-

sharing arrangements when appropriately generated from the research.[124] IRPA also includes model guidelines for the establishment of the RRC.[125]

When tribes are fully involved in the review, design, and implementation of research that meets their needs, the research is likely to result in greater benefits. This changes the paradigm from Indigenous persons being treated as research subjects to not only being active partners in the research, but actually having control of the research process.

As recognized in a Canadian Aboriginal ethics report,

> In research where Indigenous people control their own agenda, the spiritual and philosophical foundations provide the platform from which research activities unfold. The research agenda is based upon a specific philosophical foundation, is motivated by specific political origins in colonization, and is focused on tangible, practical outcomes that will serve the Indigenous community.[126]

B. Changing the Research Paradigm via IRPA

IRPA seeks to change the paradigm of research that historically has been a top-down, outside-in, and researcher-driven situation. This pattern of exploitive research has been regarded as a "continuation of cultural imperialism."[127] There are inherent problems with the typical "outsider" research paradigm because of "latent biases, inherent misconceptions, and outstanding issues of power and control."[128] Western researchers claim an inalienable right of academic freedom to research and publish; however, Indigenous peoples contest this claim because " . . . these are venues that have led to the systemic infringement of Indigenous peoples' intellectual property rights. Unwarranted research encroachment into Indigenous peoples' intellectual space is overtly predacious, whether subsumed under the rubric of scholarship or by any other title."[129]

And while national and state laws protect individual rights and freedoms, they pay scant attention to the collective rights of Indigenous peoples. To begin, IRPA is premised on a tribe's right, as a collective, to control the disposition, development, and utilization of the natural and cultural

landscape located on aboriginal and present-day tribal territories.[130] IRPA recognizes the tribe's inherent sovereign right to be the exclusive owner of its own cultural property.[131]

The IRPA broadly defines "cultural property" to include all forms of traditional knowledge, sacred property, images, sounds, crafts, art symbols, and biological and genetic material.[132] The model code sets out several principles to guide the RRC in examining proposals. One of these guides is the "Principle of Respect," which "recognizes the necessity for researchers to respect culture, traditions, and relationships of tribes and tribal members, and to avoid the imposition of external concepts and standards."[133] In order for proper respect to be paid to the tribe, research proposals must support the "Principle of Inherent and Prior Rights,"[134] the "Principle of Self-Determination,"[135] and the "Principle of Inalienability."[136]

As occurred in the Havasupai Tribe, one of the typical ways that researchers may harm Indigenous peoples is through publication of sensitive or misrepresentative information or findings. Because of this, the IRPA addresses many issues surrounding publication.

First, IRPA recognizes that the tribe and individual tribal members have a "cultural property right," which includes the right "to control and protect the ways the information they provide is used and accessed."[137] Second, the "Principle of Confidentiality" states that "the Tribe/Nation and local communities, at their sole discretion, have the right to exclude from publication and/or keep confidential any information concerning their tribal identification, tribal members, families, clans, bands, culture, traditions, mythologies, or spiritual beliefs."[138] If the researchers in the Havasupai case had followed such a principle, the Tribe would have been able to prevent the stigmatization that occurred as a result of publications about schizophrenia within its population.[139] IRPA also reserves the tribe's right to withdraw consent to use or release information and/or prevent the publication of data that is unauthorized, insensitive, or misrepresentative,

data that stereotypes the tribe, or data that will harm the health, safety, or welfare of the tribe.[140]

Finally, regarding publications, under IRPA a proposal must demonstrate a process that provides the tribe with an opportunity to review, critique, and approve the results of studies before any publication, presentation, or public release occurs.[141] Furthermore, an application must address the plans (pre-, during-, and post-project) for publication or commercialization of research findings.[142] These plans require that the applicant address how the tribe will share in authorship of publications or commercialization.[143] This requirement in IRPA ensures the tribe retains intellectual property rights over the research. In a typical scenario, the researcher(s) own all copyright on publications and they assert academic freedom to publish any and all findings. IRPA, however, recognizes that the tribe has indeed contributed to the research, and therefore should be vested with ownership.[144]

Along with many other requirements, a full-length research proposal must "describe any potential legal, financial, social, physical or psychological risks that are anticipated in the research."[145] Further, any risks must be assessed and the researcher must address the steps that will be taken to minimize, ameliorate, or repair any harm caused.[146] The Havasupai Tribe, for example, was not informed of, and did not consent to, having its DNA used to investigate ancient-human migrations.[147] But if the Tribe had been informed of that goal, under an IRPA-type tribal legal regime, the researchers would have been required to assess and explain the risks, including psychological, that could be caused by a finding that contradicted the Tribe's own oral histories about its origins. Perhaps most importantly, those researchers would have been required to make those assessments and explanations *before* publication.

Because research involving biological materials poses special risks, IRPA provides provisions for regulation of such materials that are designed to address and minimize such risks to the tribe. For example, to prevent the unauthorized secondary use of biological samples, IRPA states that "no

biological samples . . . may be released to, or used by, any other researcher(s), research institution, or any other entity, without the prior and fully-informed written approval of the Tribe/Nation."[148] This strict provision is necessary because researchers often share samples.[149]

It is also very common that genetic material becomes a part of genetic collections or gene banks housed at military, federal, academic, or private facilities for use in future medical or non-medical research.[150] In addition, many institutions maintain collections of DNA specifically from identifiable populations, including Indigenous peoples. For instance, the Human Genome Diversity Project[151] maintains its cell lines at the Centre Etude Polymorphism Humain in Paris, France,[152] and the National Institute of General Medical Sciences maintains population-based samples in its Human Variation Collection housed at the Coriell Cell Repositories in Camden, New Jersey.[153] These samples may be shared among researchers and across institutions, presumably based on some form of informed consent given at the time of collection, or prior to a new use. In the case of identifiable groups, Coriell implements a special policy that requires collectors to consult and gain group consent, in addition to individual consent, for the storage and use of samples.[154]

In federally regulated research, the law states that

> [N]o investigator may involve a human being as a subject in research . . . unless the investigator has obtained the legally effective informed consent of the subject . . . only under circumstances that provide the prospective subject or the representative sufficient opportunity to consider whether or not to participate and that minimize the possibility of coercion or undue influence. The information that is given to the subject or the representative shall be in language understandable to the subject or the representative.

In other words, "Individual persons have a legal and ethical right not to be research subjects without their voluntary, competent, informed, and understanding consent."[155] IRPA codifies this high ethical standard by prohibiting any unauthorized secondary use of biological samples.

Furthermore, upon completion of the research, or in the case of termination or cancellation of the project, the biological samples must be completely and fully returned to the possession of the tribe.[156] As discussed earlier, as in the Nuu-chah-nulth and Yanomami cases, it is very difficult to repatriate the biological specimens once they are removed from tribal control. Both of these IRPA sections are designed to prevent researchers from such nonconsensual sharing of samples and to ensure that the tribe maintains control of its biological material.

VI. FURTHER CONSIDERATIONS FOR TRIBES IN DRAFTING TRIBAL CODES

Although IRPA is intended to assist tribes in establishing a legal framework to regulate research, it does not provide all the answers. In fact, the most difficult decisions will come once the tribe receives a proposal and the review committee must weigh the risks and benefits of the proposed research. One basic ethical concern is whether any potential benefits outweigh the risks to the subject(s). Risks can come in many forms, from medical to psychological to environmental. For tribes, there has to be an evaluation of potential harms to both individual tribal members that may participate in a project and to the group as a whole. This section will discuss some of the fundamental considerations that tribes will undoubtedly face, particularly in the field of genetic research, including the following topics: consideration of cultural values in research, sovereignty issues, and the loss of intellectual property rights.

As tribes establish their own codes, they can protect their collective rights and cultural heritage on their own terms. Certainly, a tribe should consider its own cultural values and ensure any research conduct is consistent with

those values. This requires careful forethought in order to anticipate the kinds of dilemmas scientific research may pose for a tribe. For instance, many researchers (and/or the institutions that fund them) may want to assert intellectual property rights (IPRs) over the outcomes of the research. This may mean a copyright over the findings and any publications resulting from the research, or a patent over the active compound of a medicinal plant. Effectively, through the application of IPRs, the researcher can establish monopolistic control over previously collectively held information, or even part of the genetic makeup of living organisms (including human), for commercial purposes.

As a result of cries of biopiracy—the taking of biological resources or Indigenous knowledge without consent or compensation—a typical standard has emerged, which proposes to offer some form of benefit-sharing to the community from which the genetic material or knowledge has been utilized.[157] The benefits offered can range from training students, to a small-percentage share in the profits generated from the product or service developed from the research.[158]

While the offer of some benefit back may be appealing, tribes should consider that there could be some unanticipated impacts from benefit-sharing arrangements.[159] For example, once IPR protection expires, the protected subject matter goes into the public domain. Once released into the public domain, the Indigenous knowledge is no longer considered tribal property, and consequently, the tribe loses the ability to control its use because it is considered public knowledge.[160] The net result is a permanent alienation of tribally held knowledge and/or resources. For example, the Confederated Salish and Kootenai Tribes (CSKT) of Montana recognized the problems inherent with public disclosure of Indigenous knowledge in their Cultural Resource Protection Ordinance. In a section relating to confidentiality and disclosure, the Ordinance states that,

> A determination regarding the nature and cultural significance of cultural resources may involve the use of sensitive and confidential

> information regarding Tribal customs, beliefs, practices, and traditions . . . . According to Tribal beliefs and customs, such information is not readily shared and is considered proprietary and confidential. Public disclosure of this type of information could cause severe harm and loss to Tribal culture and cultural resources.[161]

The Hopi Tribe's Cultural Preservation Office administers a research protocol adopted with the express purpose of protecting the Tribe's rights to privacy in and to Hopi intellectual resources.[162] The Hopi have clearly stated that their protocol "should in no way be construed as being a call for commoditization or commercialization of the intellectual resources of Hopi people."[163] Furthermore, the Tribe states that it "reserve[s] the right to NOT sell, commoditize or have expropriated from [it] certain domains of knowledge or information."[164]

In addition, if tribes participate in the commercialization of their Indigenous knowledge or biological resources, it may conflict with their own cultural values, which disapprove of selling cultural knowledge, medicinal plants, or other sacred items. Further, such action is likely to sever the historic relationship the tribe previously had with aspects of its cultural heritage because "to sell it is necessarily to bring the relationship to an end."[165] Simply put, the tribe must consider whether commercializing its knowledge or other life forms is consistent with its cultural values and the danger of permanent alienation of a part of its cultural heritage.[166]

The IPCB recognizes and respects the inherent sovereign right of a tribe to responsibly enter into any form of commercial or benefit-sharing agreement. However, before any commercial decisions are made, tribes should fully consider the possible implications of those actions. Tribal sovereignty over cultural property is based on the inherent and proprietary right of Indigenous peoples to protect their collective heritage, knowledge, and resources as self-determining peoples,[167] and these rights stand separate and apart from Western IPR systems.[168] If we begin to apply Western IPRs

to our own cultural heritage and resources, in effect, we take a dangerous step away from our inherent right of self-determination.

The alienation of knowledge through IPRs also applies to genetic resources. The unique properties that can be found in the flora and fauna, including microorganisms, can be the subject of patents. The Patent Act defines patentable inventions as "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."[169] One leading thinker puts it this way: "We can therefore state that one of the central principles in patent law and regulation is as follows: Chemical and biological compositions of matter are patentable if through human ingenuity they are put into a form in which they do not exist in nature."[170]

Prior to 1980, laws of nature, physical phenomena, and abstract ideas were not patentable subject matter.[171] However, in 1980 the United States Supreme Court in *Diamond v. Chakrabarty* held that microorganisms produced by genetic engineering are not excluded from patent protection by 35 U.S.C. 101.[172] The test set down by the Court for patentable subject matter in this area is whether the living matter is the result of human intervention.[173]

Many Indigenous organizations have argued that life forms should not be patentable subject matter, considering that no one can claim to have invented life itself. For example, as a declaration issued by Indigenous organizations in 1995 states, "We hold that life cannot be bought, owned, sold, discovered or patented, even in its smallest form."[174] The IPCB maintains a "no patents on life" stance and has periodically made notations within IRPA reinforcing this position, such as a prohibition on patenting or commercialization of biological materials obtained from the tribe.[175]

In the world around us, cultural property is in jeopardy. The day has come that all tribes will have to make difficult but crucial decisions in their own way.

VII. CONCLUSION

When it comes to interaction with external entities, including non-Indian researchers, Indigenous peoples need to consider mechanisms that ensure equity, justice, and respect for the community/group as equal and principal partners. Tribes now more clearly realize that as sovereign nations, they have the ability to control and direct research that impacts their community and environment. Tribes not only have the right to protect the communal and individual interests of their community—indeed, it is their responsibility to do so. Tribes that have legal jurisdiction can establish regulatory frameworks, such as IRPA, for research and the protection of cultural property as an assertion of sovereignty. Indigenous peoples, by being creative and assertive in their regulatory schemes, will ensure that multiple levels of protection are established to protect their biological and cultural property in a manner consistent with their own cultural values, traditions, and customs.

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[3] Suzan Shown Harjo, *An Approach to New Law to Protect Cultural Property Rights*, INDIAN COUNTRY TODAY, Jan. 20, 2002, *available at* http://www.indiancountry.com/content.cfm?id=1011473549.

[4] *See generally* Debra Harry and Le`a Malia Kanehe, *Protecting Indigenous Knowledge in a Globalized World*, UCLA INDIGENOUS PEOPLES' J.L. CULTURE & RESISTANCE (forthcoming February 2007).

[5] Kara H. Ching, *Indigenous Self-Determination in an Age of Genetic Patenting: Recognizing an Emerging Human Rights Norm*, 66 FORDHAM L. REV. 687, 702-12 (1997) (evaluating the inadequacies of domestic and international law to protect Indigenous peoples' rights in their genetic material); Harjo, *supra* note 3.

[6] Angela R. Riley, *"Straight Stealing:" Towards an Indigenous System of Cultural Property Protection*, 80 WASH. L. REV. 69, 90-91 (2005).

[7] Havasupai Tribe, *A Case of Genetic Piracy*, http://www.geneticpiracy.com/TheCase.html (last visited Oct. 17, 2006).

[8] *Id.*; *see also* Joseph P. Oldaker, Commentary, *Who Owns Your Body? Policy Challenges for Biotechnology and Human Subjects Research*, http://www.thehumanfuture. org/commentaries/commentary_oldaker.html (last visited Oct. 17, 2006) (stating that although tribal members consented to give their blood for diabetes research, they did not consent to the other eventual uses of their blood).

[9] Lori Andrews, *Havasupai Tribe Sues Genetic Researchers*, LAW & BIOETHICS REPT., Winter 2004, 10, 10-11, *available at* http://www.louisville.edu/medschool/ibhbl/lab_report.pdf; Stephen Hart & Keith A. Sobraske, Investigative Report Concerning the Medical Genetics Project at Havasupai, 98, Dec. 23, 2003, *available at* http://www.geneticpiracy.com/Documents/HartReport.pdf (quoting researcher Chris Armstrong who considered lead researcher Therese Markow's access to Havasupai DNA and genealogies to be a "gold mine" for schizophrenia research).

[10] Andrews, *supra* note 9, at 10; Havasupai Tribe, *supra* note 7.

[11] Rex Dalton, *When Two Tribes Go to War*, 430 NATURE 500, 500 (2004).

[12] Anne Minard, *UA Scientist Named in Two Suits by Havasupai Tribe Members*, ARIZ. DAILY STAR, Mar. 24, 2005, *available at* http://www.nathpo.org/News/Tribal/News-Tribal_Governmnts37.html.

[13] *Tribal Culture Versus Genetics*, 430 NATURE 489 (2004).

[14] Minard, *supra* note 12.

[15] Oren Lyons, *All My Relations: Perspectives from Indigenous Peoples*, *in* CULTURAL AND SPIRITUAL VALUES OF BIODIVERSITY at 450 (Darrell Addison Posey ed., Intermediate Technology Publications 1999).

[16] *See* James W. Zion, *The Right of Native Peoples to Genetic Material as Cultural Property*, 14-15 (2003), for examples of tribal beliefs regarding genetic material, *available at* http://www.iiirm.org/publications/Articles%20Reports%20Papers/Genetics%20and%20Biotechnology/Jim%20Zion%20Paper-Native%20Peoples%20Genetic%20Material%20Rights.pdf.

[17] *See generally* Evangelos I. Gegas, *International Arbitration and the Resolution of Cultural Property Disputes: Navigating the Stormy Waters Surrounding Cultural Property*, 13 OHIO ST. J. ON DISP. RESOL. 129, 134-40 (1997) (discussing the international legal landscape of cultural property); Zion, *supra* note 16, at 20-23 (examining both the non-Indigenous and Indigenous' usages of cultural property).

[18] Note, however, that "cultural property" may include rare collections and specimens of fauna and flora. United Nations Education, Scientific & Cultural Commission Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, Nov. 14, 1970, 823 U.N.T.S. 232, art. 1. *See also* Gegas, *supra* note 17, at 131, n.7.

[19] U.N. Comm'n on Human Rights [UNCHR], Sub-Comm'n on Prevention of Discrimination and Prot. of Minorities, *Study on the Protection of the Cultural and Intellectual Property of Indigenous Peoples*, ¶ 24, U.N. Doc. E/CN.4/Sub.2/1993/28 (July 28, 1993) [hereinafter *Daes 1993 Study*] (*prepared* by Erica-Irene Daes).

[20] U.N. Comm'n on Human Rights [UNCHR], Sub-Comm'n on Prevention of Discrimination and Prot. of Minorities, *Protection of the Heritage of Indigenous Peoples*, Annex, ¶ 12, U.N. Doc. E/CN.4/Sub.2/1995/26 (June 21, 1995) (prepared by Erica-Irene Daes).

[21] *Daes 1993 Study*, *supra* note 19, at ¶ 26.
[22] *Id*.
[23] *Id*. *See generally* Zion, *supra* note 16, at 17-20 (discussing the notion of property in Western and Indian views).
[24] *Daes 1993 Study*, *supra* note 19, at ¶ 28.
[25] *See Id*.
[26] *See* Declaration of San Jose, ¶ 7 (Dec. 11, 1981) (on file with authors) (declaring that "Indian peoples have a natural and inalienable right to the territories they possess as well as the right to recover the land taken away from them" and that "[t]his implies the right to the natural and cultural heritage that this territory contains and the right to determine freely how it will be used and exploited."); World Conference of Indigenous Peoples on Territory, Env't and Dev., Kari-Oca, Braz., May 30, 1992, *Kari-Oca Declaration*, *available at* http://ipcb.org/resolutions/htmls/karioca.html (declaring that "[indigenous peoples] maintain [their] inalienable rights to [their] lands and territories, to all [their] resources—above and below—and to [their] waters" and that they "assert [their] ongoing responsibility to pass these onto the future generations."); U.N. Fourth World Conference on Women, Huairou, Beijing, P.R.C., Sept. 7, 1995, *Beijing Declaration of Indigenous Women*, ¶ 38, *available at* http://www.ipcb.org/resolutions/htmls/dec_beijing.html (declaring that they "demand that [their] inalienable rights to [their] intellectual and cultural heritage be recognized and respected."); Ka 'Aha Pono – Native Hawaiian Intellectual Property Rights Conference, Honolulu, Haw., U.S., Oct. 2003, *Paoakalani Declaration*, *available at* http://www.ilio.org/PaoakalaniDeclaration05.pdf (declaring that "Kanaka Maoli human genetic material is sacred and inalienable."). In 2004, the International Indigenous Forum on Biodiversity told Parties to the Convention on Biological Diversity that "[a]ll decisions in the CBD process must recognize and protect the fundamental premise that Indigenous peoples are rights holders with proprietary, inherent, and inalienable rights to our Indigenous knowledge and biological resources." Int'l Indigenous Forum on Biodiversity, Statement to the Conference of the Parties, Agenda Item 19.11, Kuala Lumpur (Feb. 2004) (on file with the authors). In opposition to the Genographic Project, the Global Caucus of Indigenous Peoples and other Indigenous organizations convened at the 2006 meeting of the United Nations Permanent Forum on Indigenous Issues stated that "[their] blood is sacred, inalienable and not for sale." Debra Harry, Collective Statement of Indigenous Organizations Opposing "The Genographic Project," Address Before the U.N. Permanent Forum on Indigenous Issues (May 26, 2006) (transcript available at http://www.docip.org/ permanent%20forum/ pfii5_xxx07.PDF).
[27] Moore v. Regents of the Univ. of Cal., 793 P.2d 479, 488, 493 (Cal. 1990) (concluding that "the use of excised human cells in medical research does not amount to a conversion" because conversion requires a retaining of property interest).
[28] SHARON HELEN VENNE, OUR ELDERS UNDERSTAND OUR RIGHTS: EVOLVING INTERNATIONAL LAW REGARDING INDIGENOUS RIGHTS 135 (1998). The Declaration was recently approved by the Human Rights Council on June 30, 2006. U.N. Human Rights Council, *Draft Report to the General Assembly on the First Session of the Human Rights Council*, 57, U.N. Doc. A/HRC/1/L.10 (June 30, 2006) [hereinafter Draft Report], *available at* http://www.ohchr.org/english/bodies/hrcouncil/1session/documentation.

htm#6; Int'l Work Group for Indigenous Affairs, *Declaration on the Rights of Indigenous Peoples*, http://www.iwgia.org/sw248.asp (last visited Oct. 19, 2006). The U.N. General Assembly was expected to vote on the Declaration by December 2006, but the measure was deferred for consideration until the end of the sixty-first session in 2007. U.N. Dep't of Pub. Info., News and Media Div., New York, Sixty-first General Assembly, Third Committee, 53rd Meeting (AM), *Third Committee Approves Draft Resolution on Right to Development; Votes to Defer Action Concerning Declaration on Indigenous Peoples*, GA/SHC/3878 (Nov. 28, 2006), *available at* http://www.un.org/News/Press/docs/ 2006/ gashc3878.doc.htm. Although a declaration is not binding on UN Member States and not considered to be a primary source of international law it is influential on future state actions and "[o]ver time and with usage . . . can become accepted as an international law nor in that it becomes representative of customary international law." VENNE, *supra* at 135-136.

[29] *Draft Report*, *supra* note 28, at Annex, art. 31.

[30] Aroha Te Pareake Mead, *Genealogy, Sacredness, and the Commodities Market*, CULTURAL SURVIVAL Q., July 31, 1996, para. 10, http://www.cs.org/publications/ csq/csq-article.cfm?id=1585.

[31] Liloqula Ruth, *Value of Life: Saving Genes versus Saving Indigenous Peoples*, CULTURAL SURVIVAL Q., July 31, 1996, para. 10, http://www.cs.org/publications/ csq/csq-article.cfm?id=1584.

[32] *See generally* Ruth, *supra* note 31.

[33] NAT'L INST. OF GEN. MED. SCIENCES AND NAT'L HUMAN GENOME RES. INST., AMERICAN INDIAN AND ALASKA NATIVE GENETICS RESEARCH POLICY FORMULATION MEETING SUMMARY MEETING REPORT [hereinafter NIGMS/NHGRI Report] 8 (Feb. 7-9, 2001), *available at* http://www.nigms.nih.gov/News/Reports/grpf_report.htm (summarizing Marla Jasperse's explanation of what her elders have expressed to her about their concerns with genetic research).

[34] Nat'l Congress of Am. Indians [hereinafter NCAI], *Resolution Condemning the Human Genome Diversity Project*, Res. No. NV-93-118 (Dec. 1993) (on file with authorss). For a critique of the Human Genome Diversity Project (HGDP), *see* JONATHAN MARKS, WHAT IT MEANS TO BE 98% CHIMPANZEE: APES, PEOPLE, AND THEIR GENES 198-218 (2002). For a comprehensive review and analysis of the HGDP, *see* JENNY REARDON, RACE TO THE FINISH: IDENTITY AND GOVERNANCE IN AN AGE OF GENOMICS (2005).

[35] NCAI, *supra* note 34.

[36] IKECHI MGBEOJI, GLOBAL BIOPIRACY: PATENTS, PLANTS, AND INDIGENOUS KNOWLEDGE 13-16 (2006) (providing a definition and explaining biopiracy, including examples of the cowpea, chickpea, quinoa, and basmati rice); GRAHAM DUTFIELD, INTELLECTUAL PROPERTY, BIOGENETIC RESOURCES AND TRADITIONAL KNOWLEDGE 52-56 (2004) (providing a definition of biopiracy and providing examples regarding patents on hoodia, neem, quinoa and enola); Debra Harry and Le`a Malia Kanehe, *The Right of Indigenous Peoples to Permanent Sovereignty Over Genetic Resources and Associated Indigenous Knowledge*, J. INDIGENOUS POL'Y 28, 29-32 (2006) (providing case studies on biopiracy related to wildrice in the U.S., hoodia from South Africa, maca

from Peru, ayahuasca from the Amazon region of South America, bingator from Malaysia, and marine biodiversity in Hawai`i).

[37] MGBEOJI, *supra* note 36, at 13; DUTFIELD, *supra* note 36, at 52.

[38] JEREMY RIFKIN, THE BIOTECH CENTURY 49 (1998).

[39] *Daes 1993 Study*, *supra* note 19, at ¶ 90 (citing Michael Blalick, *Ethnology and the Identification of Therapeutic Agents From the Rainforest*, *in* BIOACTIVE COMPOUNDS FROM PLANTS (Derek J. Chadwick & Joan Marsh eds., 1990)).

[40] STEPHANIE HOWARD, LIFE, LINEAGE AND SUSTENANCE: INDIGENOUS PEOPLES AND GENETIC ENGINEERING: THREATS TO FOOD, AGRICULTURE, AND THE ENVIRONMENT 8 (Debra Harry & Brett Lee Sheldon eds., 2001), http://www.ipcb.org/pdf_files/ LifeLineageandSustenance.pdf.

[41] *Id*. For further information about the human health, environmental, and other risks of genetically modified organisms, *see* MARTIN TEITEL & KIMBERLY A. WILSON, GENETICALLY ENGINEERED FOOD: CHANGING THE NATURE OF NATURE (Park Street Press 1999); MARGARET MELLON & JANE RISSLER, GONE TO SEED: TRANSGENIC CONTAMINANTS IN THE TRADITIONAL SEED SUPPLY (2004), providing scientific evidence that seeds of traditional varieties of corn, soybeans, and canola are pervasively contaminated with low levels of DNA sequences derived from transgenic varieties; and DAVID ANDOW ET AL., UNION OF CONCERNED SCIENTISTS, A GROWING CONCERN: PROTECTING THE FOOD SUPPLY IN AN ERA OF PHARMACEUTICAL AND INDUSTRIAL CROPS (David Andow ed., 2004), reviewing the concerns of the Union of Concerned Scientists regarding "pharma" crops that produce drugs, hormones, and other therapeutic agents, and industrials crops that produce compounds industrial purposes.

[42] For discussions on how some Indigenous peoples in the U.S. have dealt with genetic modification of their native foods, *see generally* WINONA LA DUKE & BRIAN CARLSON, OUR MANOOMIN, OUR LIFE: THE ANISHINAABEG STRUGGLE TO PROTECT WILD RICE (2003) (detailing the experience that the Anishinaabeg peoples of the Great Lakes region have had with genetically engineered wild rice); Walter Ritte, Jr. & Le`a Malia Kanehe, *Pacific Genes & Life Patents: Pacific Indigenous Experiences & Analysis of the Commodification & Ownership of Life, in* PACIFIC DIALOGUE ON OWNERSHIP OF GENES **(**Aroha Mead and Steven Ratuva eds.**,** 2006) (reviewing Native Hawaiian opposition to genetically modified taro).

[43] Pueblo of Tesuque, Opposition to the Prolific Use and Enhancement of Genetically Engineered Plant Seeds and Transgenic Crops, Res. No. 13-0413-2006 (Apr. 13, 2006) (on file with authors).

[44] *Id*. Recently, the Tribal Council of Pueblo of Pojoaque also passed a similar resolution opposing genetically modified organisms. Pueblo of Pojoaque Tribal Council, Adopting A Declaration of Seed Sovereignty, Res. No. 2006-058 (July 6, 2006) (on file with authorss). *See also*, Eight Northern Indian Pueblos Council, Opposition to the Prolific Use and Enhancement of Genetically Engineered Plant Seeds and Transgenic Crops, Resolution No. 06-04-22, (Apr. 18, 2006) (on file with the authors); All Indian Pueblo Council, Opposition to the Prolific Use and Enhancement of Genetically Engineered Plant Seeds and Transgenic Crops, Resolution No. 2006-09 (Apr. 20, 2006) (on file with the authors).

[45] *See* Jeffrey C. Long & Joseph G. Lorenz*, Culture and Medicine: Genetic Polymorphism and American Indian Health*, 176 W.J. MED. 203, 204 (2002), *available at* http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1071720.
[46] *Id*.
[47] RUTH HUBBARD AND ELIJAH WALD, EXPLODING THE GENE MYTH 77 (1997).
[48] Havasupai Tribe, *supra* note 7. The Arizona State University's own investigative findings into the case discovered that, "[s]amples were distributed to other institutions and research was done using them, which was not related to diabetes." Hart & Sobraske, *supra* note 9, at 3.
[49] David Wiwchar, *Nuu-Chanulth Blood Returns to West Coast*, HA-SHILTH-SA 1 (Dec. 16, 2004), http://www.caj.ca/mediamag/awards2005/Pages/Community%20Newspaper.htm.
[50] *Id*.
[51] *Id*.
[52] Jamie Talan, *The Search for Genetic Keys to Alcoholism; Research: Scientists Hope That By Understanding the Disease Better, They Can Develop More Effective Treatments*, NEWSDAY, May 21, 2001, at 2, *available at* http://hubel.sfasu.edu/courseinfo/articles/Alcoholism_genes.htm (discussing studies on Native American tribes in the Southwest that found that genetic contribution to alcoholism might be as high as 85 percent).
[53] Long & Lorenz, *supra* note 45, at 205.
[54] *Once Were Warriors: Gene Linked to Maori Violence*, SYDNEY MORNING HERALD, Aug. 9, 2006, at 1, *available at* http://www.smh.com.au/news/world/once-were-warriors-gene-linked-to-maori-violence/2006/08/08/1154802890439.html#.
[55] *Gene Stokes Smoking Addiction*, NEW ZEALAND HERALD, Feb. 24, 2005, at 1, *available at* http://www.nzherald.co.nz/category/ story.cfm?c_id=204&objectid=10112375.
[56] Long & Lorenz, *supra* note 45, at 205.
[57] Jon Stokes, *Maori 'Warrior Gene' Claims Appalling, Says Geneticist*, NEW ZEALAND HERALD, Aug. 10, 2006, at 1, *available at* http://www.nzherald.co.nz/category/story.cfm?c_id=204&objectid=10395491.
[58] Agence France-Presse, *Maori Slam 'Warrior' Gene Study*, Australian Broadcasting Corporation, Aug. 9, 2006, *available at* http://www.abc.net.au/science/news/health/HealthRepublish_1710435.htm.
[59] In the *Genomics* article that first announced the Human Genome Diversity Project in 1991, lead HGDP scientists asserted the following:

> The populations that can tell us the most about our evolutionary past are those which have been isolated for some time, are likely to be linguistically and culturally distinct, and are often surrounded by geographical barriers. . . . Isolated human populations contain much more informative genetic records than more recent, urban ones. Such human populations are being rapidly merged with their neighbors, however, destroying irrevocably the information needed to reconstruct our evolutionary history.

MARKS, *supra* note 34, at 203-204.

[60] PETER N. JONES, AMERICAN INDIAN MTDNA, Y CHROMOSOME GENETIC DATA, AND THE PEOPLING OF NORTH AMERICA 4, 107-217 (2004).

[61] *Id*. at 60-61.

[62] *See generally*, Indigenous Peoples Council on Biocolonialism, *The Inappropriate Use of Genetic Analysis in Repatriation*, Indigenous Peoples Council on Biocolonialism Briefing Paper, Jan. 2006, *available at* http://www.ipcb.org/publications/briefing_papers/files/repatriation.html (discussing tribes taking a stand against ancient DNA taken and studied against contemporary populations).

[63] The Cherokee Code, § 70.1 (a), (c), Excavation of Skeletal Remains, *available at* http://www.narf.org/nill/Codes/ebcicode/eccodech70preservation.htm.

[64] For example Hart & Sobraske, *supra* note 9, at 3, where the investigative findings found that published papers using Havasupai samples drew inferences about the Tribes' migration to the Americas, which were used in press coverage to contrast Native American beliefs.

[65] REARDON, *supra* note 34, at 68.

[66] Debra Harry and Le`a Malia Kanehe, *Collecting Blood to Preserve Culture?,* CULTURAL SURVIVAL Q., Winter 2006, at 34, 36.

[67] *Id*.

[68] U.S. Patent No. 5,397,696 (filed Mar. 14, 1995).

[69] Ching, *supra* note 5 at 700-01. Eventually, the US did drop the patent application. *Id*.

[70] Wiwchar, *supra* note 49, at 1.

[71] David Glenn, *Science BC (Before Consent)*, THE CHRONICLE OF HIGHER EDUCATION, Mar. 3, 2006, at A16.

[72] NIGMS/NHGRI Report, *supra* note 33, at 10 (summarizing the presentation of Brett Lee Shelton).

[73] Tribes no longer may assert criminal jurisdiction over non-Indians. Oliphant v. Suquamish Indian Tribe, 435 U.S. 191, 212 (1978); Julie A. Pace, *Enforcement of Tribal Law in Federal Court: Affirmation of Indian Sovereignty or a Step Backward Towards Assimilation*, 24 ARIZ. ST. L.J. 435, 436 (1992). With an increasing number of Native Americans becoming researchers themselves, it is of course possible that a tribe will be faced with research conducted by its own tribal members or non-member Indians. In this case, the tribe would clearly have both civil and criminal jurisdiction. *Id*. at 436-437, n. 5. Even if they are Indian researchers, typically they are undertaking research on behalf of a non-Native institution (i.e, university, corporation, government agency, etc.). In an effort to minimize outside research, some tribes have chosen to do most of their research in-house or have a tribal program become a partner in the research. Dan McDonald *et. al*., *Tribal Wilderness Research Needs and Issues in the United States and Canada*, USDA Forest Service Proceedings RMRS-P-15-VOL-2, 290-294, 293 (2000), *available* at http://www.fs.fed.us/rm/pubs/rmrs_p015_2.html. (discussing the usual paradigm—a non-Native researcher/institution seeking access to Native subjects or Native cultural property).

[74] Montana v. U.S*.,* 450 U.S. 544, 565-68 (1981).

[75] *Id*. at 565 (citing Williams v. Lee, 358 U.S. 217, 223 (1959)); *See also* Morris v. Hitchcock, 194 U.S. 384 (1904); Buster v. Wright, 135 F. 947, 950 (8th Cir. 1905); Washington v. Confederated Tribes of Colville Indian Reservation, 447 U.S. 134, 152-54 (1980).
[76] *Id*. at 566 (citing Fisher v. District Court, 424 U.S. 382, 386, 96 S.Ct. 943, 47 L.Ed.2d 106; Williams v. Lee, 358 U.S. at 220; Montana Catholic Missions v. Missoula County, 200 U.S. 118, 128-129, 26 S.Ct. 197, 50 L.Ed. 398; Thomas v. Gay, 169 U.S. 264, 273, 18 S.Ct 340, 42 L.Ed. 740).
[77] Chilkat Indian Village v. Johnson, 870 F.2d 1469, 1471 (9th Cir. 1989).
[78] *Id*.
[79] *Id*.
[80] *Id*.
[81] Chilkat Indian Village v. Johnson, No. 90-01, slip op. at 13-14 (Chilkat Tr. Ct., Nov. 3, 1993), *available at* http://www.ankn.uaf.edu/curriculum/tlingit/chilkatindianvillage.
[82] *Id*.
[83] *Id*.
[84] Pace, *supra* note 73, at 466-467.
[85] Chilkat Indian Village v. Johnson, 870 F.2d 1469, 1473-74 (9th Cir. 1989).
[86] Chilkat Indian Village v. Johnson, No. 90-01, slip op. at 6-18. (Chilkat Tr. Ct., Nov. 3, 1993). For a discussion on the nature of the testimony regarding tribal customary law, see Vanessa Magnanini, *Constructing Tribal Sovereignty for the 21st Century: The Story in Chilkat Indian Village, IRA v. Johnson*, 18 B.C. THIRD WORLD L.J. 45, 63-69 (1998).
[87] Chilkat Indian Village v. Johnson, No. 90-01, slip op. at 18 (Chilkat Tr. Ct., Nov. 3, 1993).
[88] Riley, *supra* note 6, at 91. A total of 351 Indian tribes were identified for possible research; however, only 193 had tribal codes that were accessible via the internet, and these became the basis of the study. *Id*. at 100. Riley notes that "[o]utside of universities with large Indian law collections, hard copy sources [of tribal law] remain elusive. Therefore, simply because this research did not reveal that a particular tribe has a tribal code regarding preservation of its cultural resources does not mean one does not exist." *Id*. at 94-95.
[89] *Id*. at 101.
[90] *Id*.
[91] *Id*. (citing Confederated Salish & Kootenai Tribes of Flathead Reservation, Cultural Resource Protection Ordinance Part III (2004); CONFEDERATED TRIBES OF WARM SPRINGS RESERVATION, TRIBAL CODE CH. 490.010(4) (2003); GILA RIVER PIMA-MARICOPA INDIAN COMMUNITY OF GILA RIVER INDIAN RESERVATION, TRIBAL CODE TIT. 15, CH. 3, § 15.301 (1988) (creating a "Native Plant Law")). In completing a close reading of the Gila River Native Plant Law, it does not show clear intent that the plants were designated for medicinal, ceremonial or cultural purposes as Riley presumes, but appears to be more of a conservation law. Further, in actuality the code indicates an openness to scientific research.
[92] Riley, *supra* note 6, at 101.
[93] Indian Entities Recognized and Eligible To Receive Services From the United States Bureau of Indian Affairs, 67 Fed. Reg. 134, 46328 (2002).

[94] Confederated Tribes of Warm Springs Tribal Code, ch. 490, Protection and Management of Archaeological, Historical and Cultural Resources, *available at* http://www.warmsprings.com/warmsprings/Tribal_Community/Tribal_Government/Current_Governing_Body/Tribal_Code_Book/ [hereinafter Warm Springs Code].
[95] *Id*. at § 490.001.
[96] *Id*. at § 490.010(4).
[97] *Id*. at §§ 490.010(4) and 490.510.
[98] *Id*. at § 490.100(1).
[99] *Id*. at § 490.100(2).
[100] Snoqualmie Cultural Resource Protection Ordinance, Part III, § 1(g), http://www.snoqualmienation.com/New_Folder/CRPO.pdf.
[101] *Id*. at § 3(d)(2).
[102] *Id*. at § 3(d)(1).
[103] *Id*. at Part II, § 1(f).
[104] *Id*.; Warm Springs Code, *supra* note 94, at §§ 490.010(4) and 490.510.
[105] *See generally* MGBEOJI, *supra* note 36, at 141-144; RIFKIN, *supra* note 38, at 48-56.
[106] SHELDON KRIMSKY, SCIENCE IN THE PRIVATE INTEREST: HAS THE LURE OF PROFITS CORRUPTED BIOMEDICAL RESEARCH? 59-60, 65 (2003).
[107] Little Traverse Bay Band of Odawa Indians, Waganakising Odawak Tribal Code, Title IV, ch. 10, Act Prohibiting the Patenting of Organisms (2004), *available at* http://www.ltbbodawa-nsn.gov/TribalCode2005/LTBB_Tribal_Code_2005.htm.
[108] *Id*. at § 4.1003.
[109] *Id*. at § 4.1001.
[110] Navajo Nation Human Research Code § 12(14) (1995), *available at* http://www.nnhrrb.navajo.org.
[111] *Id*. at § 10(a).
[112] *Id*. at § 14.
[113] *Id*. at § 3(c).
[114] *Id*. at § 5(c).
[115] *Id*. at § 10(b).
[116] The IPCB is a U.S.-based non-profit organization based on the Pyramid Lake Paiute Reservation (Nevada) created to assist Indigenous peoples in the protection of their genetic resources, indigenous knowledge, and cultural and human rights from the negative effects of biotechnology.
[117] The Indigenous Research Protection Act (IRPA) (2000) (revised 2006) [hereinafter IRPA], *available at* http://www.ipcb.org/publications/policy/index.html.
[118] *Id.* at § 2 (a).
[119] *Id*. at § 2 (b).
[120] *Id*. at § 2 (c).
[121] *Id*. at § 2 (d).
[122] These include, among others, the "Protocol For Review of Environmental And Scientific Research Proposals" developed by the Akwesasne Task Force on the Environment (ATFE)(1996), and the American Indian Law Center Model Tribal Research Code, Albuquerque, 1994. The Canadian Institutes of Health Research is currently in the process of developing the "Guidelines for Health Research Involving

Aboriginal Peoples", and is a good example of guidelines to oversee health research. A draft copy of this document can be found at: http://www.cihr-irsc.gc.ca/e/29134.html.

[123] IRPA, *supra* note 117, at § 1.1.

[124] *Id*. at § 4.2.

[125] *Id*. at § 5.

[126] WILLIE ERMINE, ET AL., INDIGENOUS PEOPLES' HEALTH RESEARCH CENTRE, THE ETHICS OF RESEARCH INVOLVING INDIGENOUS PEOPLES, July 2005, at 16, *available at* http://www.iphrc.ca/resources/iphrc-research-documents-and-reports.htm.

[127] *Id*. at 26.

[128] *Id*. at 28.

[129] *Id*. at 25.

[130] IRPA, *supra* note 117, at § 1.1.

[131] *Id*.

[132] *Id*. at § 3.8.

[133] *Id*. at § 5.1(e).

[134] "This principle recognizes that the Tribe/Nation has inherent and prior proprietary rights and interests over all forms of their cultural and natural resources within their territories together with all cultural property and cultural property rights associated with such properties and their use." IRPA, *supra* note 117, at § 5.1(i).

[135] "This principle recognizes that Tribe/Nation, have a right of self-determination and exercise tribal sovereignty over their affairs, and that researchers and persons will acknowledge and respect such rights." IRPA, *supra* note 117, at § 5.1(j).

[136] "This principle recognizes the inalienable rights of Tribes/Nation in relation to their traditional territories, cultural property and natural resources, and associated knowledge. These rights are collective by nature but can include individual rights. It shall be for indigenous Tribe/Nation to determine for themselves the nature and scope of their property rights regimes." IRPA, *supra* note 117, at § 5.1(k).

[137] *Id*. at § 3.9.

[138] *Id*. at § 5.1(c).

[139] Oldaker, *supra* note 8, at ¶ 9.

[140] IRPA, *supra* note 117, at § 12.1(a).

[141] *Id*. at § 6.4(l).

[142] *Id*.

[143] *Id*.

[144] *Id*. at § 6.4(m).

[145] *Id*. at § 6.4(f).

[146] *Id*.

[147] Andrews, *supra* note 9, at 10.

[148] IRPA, *supra* note 117, at § 11.4.

[149] As an example, Dr. Erlich admits he gave the Havasupai samples obtained from ASU to a doctoral candidate at University of California at Berkeley. Hart & Sobraske, *supra* note 9, at 2.

[150] Rebecca Skloot, *Taking the Least of You: The Tissue-Industrial Complex*, N.Y. TIMES, Apr. 16, 2006, at 38.

[151] Human Genome Diversity Project, http://www.stanford.edu/group/morrinst/hgdp.html (last visited Oct. 18, 2006).
[152] Howard M. Cann et al, *A Human Genome Diversity Cell Line Panel*, 296 SCIENCE 261, 261-62 (Apr. Apr. 12 2002, Vol. 296, No. 5566, 261-262.
[153] The Coriell Cell Repository Human Variation Collection, *available a*t http://ccr.coriell.org/nigms/cells/humdiv.html (last visited Oct. 22, 2006).
[154] Policy for the Responsible Collection, Storage, and Research Use of Samples from Named Populations for the NIGMS Human Genetic Cell Repository Revised (2004), http://ccr.coriell.org/nigms/comm/submit/collpolicy.html (last visited Nov. 1, 2006).
[155] George Annas*, Rules for Research on Human Genetic Variation – Lessons from Iceland*, 342 NEW ENG. J. MED. 1830 (2000).
[156] IRPA, *supra* note 117, at § 11.3.
[157] A troubling exception is the UN Convention on Biological Diversity's proposed International Regime on Access and Benefit Sharing that presumes state sovereignty over resources but will offer benefits for the use of traditional knowledge. For more in-depth discussion about benefit-sharing arrangements, *see* Debra Harry and Le`a Malia Kanehe, *The BS in Access and Benefit Sharing (ABS): Critical Questions for Indigenous Peoples*, in THE CATCH: PERSPECTIVES IN BENEFIT SHARING 81-120, 97-109 (Beth Burrows ed., 2005), *available at* http://www.ipcb.org/publications/other_art/bsinabs.html.
[158] *Id*.
[159] *Id*. at 9.
[160] ERMINE, *supra* note 126, at 29.
[161] Confederated Salish and Kootenai Tribes of the Flathead Reservation, Cultural Resource Protection Ordinance, enacted Sept. 29, 1995, PART VI (a). *See also*, David Ruppert, Buying Secrets: Federal Government Procurement of Intellectual Cultural Property, in INTELLECTUAL CULTURAL PROPERTY RIGHTS FOR INDIGENOUS PEOPLES 113-128 (Tom Greaves ed., 1994) (discussing the CSKT's decision not to share culturally sensitive information with the National Park Service where federal procurement laws would prevent the tribe's retention of intellectual property rights over the information).
[162] Hopi Cultural Preservation Office, Protocol for Research, Publications and Recordings, *available at* http://www.nau.edu/~hcpo-p/hcpo/index.html.
[163] *Id*.
[164] *Id*.
[165] *Daes 1993 Study*, *supra* note 19, at ¶ 26.
[166] *Id*. at ¶¶ 109-112.
[167] Debra Harry, *Acts of Self-Determination and Self-Defense: Indigenous Peoples' Responses to Biocolonialism*, 87-97, 88-89, *in* RIGHTS AND LIBERTIES IN THE BIOTECH AGE (Sheldon Krimsky & Peter Shorett Eds., 2005); Kara H. Ching, *Indigenous Self-Determination in an Age of Genetic Patenting: Recognizing an Emerging Human Rights Norm*, 66 FORDHAM L. REV., 687, 712-16 (1997); ERMINE, *supra* note 126, at 111.
[168] *Daes 1993 Study*, *supra* note 19, at ¶ 32.
[169] 35 U.S.C. § 101 (2006).
[170] KRIMSKY, *supra* note 106, at 60.
[171] U.S. Pat. and Trademark Office, http://www.uspto.gov/web/offices/pac/doc/general/index.html#ptsc (last visited Oct. 18, 2006).

[172] Diamond v. Chakrabarty, 447 U.S. 303, 318 (1980).
[173] U.S. Pat. and Trademark Office, Manual of Patent Examining Procedure, (8th ed. 2001) *available at* http://www.uspto.gov/web/offices/pac/mpep/documents/ 2100_2105.htm.
[174] Declaration of Indigenous Peoples of the Western Hemisphere Regarding the Human Genome Diversity Project (1995), *available at* http://www.ankn.uaf.edu/IKS/ declaration.html.
[175] In the section regarding the Regulation of Biological Samples, the IRPA states, "No entity may seek to patent or commercialize any biological materials obtained from the Tribe/Nation, from the Tribe/Nation's jurisdiction, or under the authority of the Tribe/Nation. This includes genetic samples, any copies of the original genetic samples, any cell lines containing copies of the original genetic samples, and data derived from these samples." IRPA *supra* note 117, at § 11.7.