

Intellectual Property Rights and Indigenous Peoples

Annotated Bibliography

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I. Legal Frameworks and Analysis

Alexander, D. 1993. "Some themes in intellectual property and the environment." *Review of European Community and International Environmental Law* 2(2): 113-20.

Discusses the relationship between intellectual property law and environmental protection. The author argues that lawyers should cooperate to ensure that intellectual property rights support the objectives of environmental protection.

Barsh, R.L. 1986. "Indigenous peoples: An emerging object of international law." *American Journal of International Law* 80: 369-85.

Reviews the different international institutions that have sought to recognize the rights of indigenous peoples. Among other topics, the article considers the regional scope and definition of the term "indigenous," the role of the United Nations in protecting indigenous peoples' rights and the growth of indigenous advocacy. The author concludes by arguing that indigenous organizations are emerging as a kind of regional group with broad interests, which seem likely to enhance both their credibility and the force of their claims.

Bozicevic, Karl. 1987. "Distinguishing products of nature from products derived from nature." *Office of the Patent and Trademark Office Society* 69: 415-26.

Examines the legal distinction between a product of nature and a product derived from nature. A legal history of this distinction is provided. The article argues that setting forth standard criteria of seven "guide posts" will help to evaluate the potential patentability of commercial products.

Breckenridge, Lee P. 1992. "Protection of biological and cultural diversity: Emerging recognition of local community rights in ecosystems under international environmental law." *Tennessee Law Review* 59(4): 735-85.

Examines the alliance between the themes of biological diversity and cultural diversity in the provisions of the United Nations Conference on Environment and Development (UNCED) documents related to management of biological resources. Part I advances the argument that international environmental law has supported notions of global trusteeship in the management of biological resources, while international human rights documents have supported recognition of local rights to access and management of resources. Both of these perspectives challenge existing concepts of sovereignty and private property. Part II shows how an international environmental standard of "sustainability" is linked to the empowerment of local communities and to the formulation of rights of indigenous peoples. Part III examines models of resource management that might be cited as exemplifying the linkages advanced by the UNCED documents.

Byrne, N. 1993. "Plant breeding and the UPOV." *Review of European Community and International Environmental Law* 2(2): 136-40.

This article contests the view that breeders' rights confer a license to pillage the resources of Third World countries. The authors argue that the Union for Protection of New Varieties of Plants (UPOV) system is to blame for erosion of genetic diversity of crop plants.

Cameron, James and Z. Makuch. 1995. "The UN Biodiversity Convention and the WTO TRIPs Agreement: Recommendations to avoid conflict and promote sustainable development." Gland, Switzerland: World Wide Fund for Nature.

Negotiation of the Convention on Biological Diversity (CBD) took place with little discussion of linkages to GATT's section on Trade-Related Aspects of Intellectual Property Rights (TRIPs). The authors analyze the relationship and potential conflicts between these two agreements and make recommendations to defuse any such conflicts and ensure that the objectives of the CBD are not undermined by TRIPs.

Canal-Forgues, E. 1993. "Code of conduct for plant germplasm collecting and transfer." *Review of European Community and International Environmental Law* 2(2): 167-71.

This article describes the United Nations Food and Agricultural Organization's (FAO) global system, the Commission on Plant Genetic Resources Code of Conduct for Plant Germplasm Collecting and Transfer, and the relation of the code to the Convention on Biodiversity. The author, a lawyer with the FAO, provides lots of insider legal detail.

Chung, Fong Joo. 1996. "Interests and policies of the state of Sarawak, Malaysia regarding intellectual property rights for plant derived drugs." *Journal of Ethnopharmacology* 51: 201-4.

Describes the regulatory guidelines created by the Sarawak government to protect its indigenous biological resources. The author argues that unless property control is instituted to regulate the collection and use of its biological resources, the state of Sarawak may get none of the benefits derived from its rich biodiversity.

Cooper, D. 1993. "The international undertaking on plant genetic resources." *Review of European Community and International Environmental Law* 2(2): 158-66.

Provides a discussion of the International Undertaking on Plant Genetic Resources (IUPGR) as it has developed since 1983. The author suggests that IUPRG facilitated the negotiations that led to the Convention on Biodiversity, but that a new legal instrument is needed to address the conservation and use of plant genetic resources.

Cragg, Gordon M. et al. 1994. "Policies for international collaboration and compensation in drug discovery and development at the United States National Cancer Institute: The NCI letter of collection." In T. Greaves, ed. *Intellectual property rights for indigenous peoples: A sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 83-98.

The National Cancer Institute (NCI), a key figure in worldwide plant screening for treatments of cancer and AIDS, has taken a lead in recognizing that the practice of simply expropriating these plant substances and knowledge without recognizing the rights of countries and peoples of origin must stop. The NCI Letter of Collection is a benchmark in the widening practice of establishing these rights. The authors of this article present the NCI letter and argue that it can be used not only between the NCI and national institutions in host countries but also with indigenous societies.

da Costa e Silva, E. 1995. "The protection of intellectual property for local and indigenous communities." *European Intellectual Property Review* 17(11): 546-9.

A technical legal article which affirms that it is possible to interpret the wording of the Convention on Biodiversity as including the traditions of local and indigenous communities within the current system of national and or international laws. The author provides an analysis of the protection of

intellectual property for indigenous communities at the multilateral, regional and national level. Included in this analysis is a summary of the 1994 GATT negotiations, The Andean Pact, and a newly proposed Brazilian law, PL 824/91. The author concludes that national courts will have to decide whether protection for local and indigenous people can be granted by the existing system of laws.

Dam, K.W. 1995. "Intellectual property in an age of software and biotechnology." *Law & Economics Working Paper No. 35*. Spring.

Essay discusses the economic principles of intellectual property as they apply to the decisionmaking framework for new technology. In particular, it examines the intellectual property problems created for courts and legislatures by two recent technologies: software and biotechnology. The author argues that the economic approach to intellectual property law clears up many of the technical issues of patent and copyright law.

Esquinas-Alcazar, J. 1993. "The global system on plant genetic resources." *Review of European Community and International Environmental Law* 2(2): 151-7.

In this article, the Secretary of the Food and Agricultural Organization's (FAO) Commission on Plant Genetic Resources describes the development of the FAO Global System for Plant Genetic Resources and the implications of the Convention on Biological Diversity for that system.

Flitner, M.; Leskien, D.; and Myers, D. 1995. *Review of national actions on access to genetic resources and IPR in several developing countries*. Gland, Switzerland: World Wide Fund for Nature.

Reviews recent national laws to implement the Convention on Biological Diversity and the section of GATT on Trade-Related Aspects of Intellectual Property Rights. The authors present the views of local NGOs on new legislation in selected countries with high levels of biodiversity.

Fundación Sabiduría Indígena and Brij Kothari. 1997. "Rights to the benefits of research: Compensating indigenous peoples for their intellectual contribution." *Human Organization* 56 (2): 127-37.

Argues that compensation for the resources of indigenous peoples must be incorporated into ethnobotanical research itself rather than viewing it as a post-project undertaking. A strategy to implement rights to the benefits of research (RBR) which are based on ethical guidelines and indigenous peoples' empowerment is suggested. In order to support this suggestion, the author discusses an ethnobotanical project conducted in Ecuador which has compensated indigenous people using RBR rather than intellectual property rights.

Golvan, Colin. 1992. "Aboriginal art and the protection of indigenous cultural rights." *European Intellectual Property Law Review* 14(7): 227-32.

Examines how Australian aboriginal culture has sought to protect its art industry through the use of already available legal instruments. The author discusses current protection available for copyright, the aboriginal understanding of ownership, and a proposed legislative solution to protecting cultural property. The article concludes by arguing that other indigenous groups would benefit from incorporating laws used by the aborigines in pursuit of protecting their art and culture.

Greengrass, B. 1991. "The 1991 Act of the UPOV Convention." *European Intellectual Property Review* 13(12): 466-72.

Article provides a technical examination of the text of the 1991 International Convention for the Protection of New Varieties of Plants Act (UPOV). It looks specifically at the changes made to the act from its creation in 1961 up to the most recent version adopted in 1991. The author withholds judgment as to the drawbacks or benefits of the latest version, providing instead a thorough account of the history and intent of the UPOV.

Harhoff, F. 1991. "Indigenous rights between law and sociology: Internationalizing soft norms in a hard context." *North Atlantic Studies* 1(2): 64-70.

This article identifies certain aspects of dogmatic legal science relevant to the study of binding norms beyond traditional hierarchy of legal sources. The author argues that recognition of the right of indigenous peoples to self-determination in international law will depend on the international community's willingness to accept modification to the principle of sovereignty.

Hendrickx, F.; Koester, V.; and Prip, C. 1993. "Access to genetic resources: A legal analysis." *Environmental Policy and Law* 23(6): 250-8.

Analyzes Article 15 of the CBD, which deals with access to genetic resources, and contains a detailed discussion of the concept of prior informed consent in the context of the convention.

Jabbour, A. 1983. "Folklore protection and national patrimony: Developments and dilemmas in the legal protection of folklore." *Copyright Bulletin* 18: 10-4.

A brief reflection by a cultural specialist working at the American Folklife Center on the multifaceted problems associated with protecting folklore. The author addresses the problems of authentication, expropriation and compensation. He also looks at various legal frameworks designed to cope with such problems. In conclusion, the author argues that all of these problems are embedded within a larger dilemma regarding the relationship of the world's traditional cultures to the nation-states within the legal frameworks of which they must exist.

Kadidal, Shayana. "Plants, poverty, and pharmaceutical patents." *The Yale Law Journal* 103 (177): 223-58.

Argues that the Rio Convention requires that less developed countries receive intellectual property rights in pharmaceutically useful chemicals derived from their biodiversity resources, and that a system of such rights would provide a more equitable and efficient method of valuing these resources. The author argues that modifications in our system of chemical patents may be required in order to fulfill the aspirations of the Rio Convention. She proposes changes to extant patent doctrines that would have the potential to make pharmaceutical development more efficient and responsive to diverse worldwide needs as well as to encourage the conservation of biological resources.

Lobo, S. 1991. "The fabric of life: Repeating the sacred Coroma textiles." *Cultural Survival Quarterly* 15(3): 40-6.

Tracks the efforts of the people of Coroma, Bolivia who, upon discovering that some of their sacred textiles had been stolen as part of the illicit trade in antiquities, attempted to have them returned. The author argues that this case has stimulated awareness in North America of the scale of violations of indigenous peoples' cultural property rights.

Maddock, Kenneth. 1989. "Copyright and traditional designs—an aboriginal dilemma." *Intellectual Property* 2(1): 7-9.

Provides a comparative look at the complex traditional means of protecting intellectual or cultural property in aboriginal society. The author highlights the relationship between aboriginal art, law and social life.

Nafziger, James. 1987. "Protection of cultural property." *California Western International Law Journal* 17: 283-9.

Summarizes international cultural property law, describes several recent developments related to the law and suggests some ways to improve the legal regime. The author claims that it is ridiculous to argue that all objects should remain in their country of origin, or that they should be restored or returned to those countries in all cases. He argues that we need to define the concept of "genuine significance" and attempt to determine which objects are important enough to require restitution and return. He concludes by suggesting four categories with respect to restitution claims that would further refine the international law of restitution.

Niedzielska, M. 1980. "The intellectual property aspects of folklore protection." *Copyright* November: 339-46.

Outlines some of the problems with using intellectual property rights to protect folklore. The article carefully distinguishes between folk art and folklore and argues that although folklore is a form of property that does not properly belong to anyone, and cannot, at least under current laws, become the object of an exclusive right in favor of anyone, we should look for other means of legal protection. The author concludes that when one is addressing the question of protecting subject matter that is common property, the measures for protection under civil law have to be paralleled by application of the provisions of administrative law.

Nijar, Gurdial Singh. 1994. *Towards a legal framework for protecting biological diversity and community intellectual rights: A Third World perspective*. Penang, Malaysia: Third World Network.

Part I of the article broadly addresses the link between traditional people's knowledge systems and the protection of biodiversity. Part II explains how international developments in the UPOV, FAO and Farmers' Rights have affected the recognition of rights in biodiversity of nations, farmers and indigenous peoples. The final section of the article looks at alternative legal frameworks for regulating access to biological resources that would respect the rights of traditional peoples. Specific proposals are spelled out in the appendix.

Reichman, J.H. 1995. "Universal minimum standards of intellectual property protection under the TRIPs component of the WTO Agreement." *The International Lawyer* 29(2): 345-88.

Provides a detailed and comprehensive picture of all of the important provisions contained in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), as finalized at Marrakech, Morocco, on April 15, 1994. It reviews the basic principles underlying the TRIPs agreement as well as examining the positions of both developing and developed countries. The author argues that the evolution of intellectual property legal framework will merit constant attention by all those economic actors in developed and developing countries whose long term fortunes depend on a proper balance between incentives to create and free competition.

Rubin, S.M. and S. C. Fish. 1994. "Biodiversity prospecting: Using innovative contractual provisions to foster ethnobotanical knowledge, technology and conservation." *Colorado Journal of International Environmental Law and Policy* 5: 23-58.

Asserts that the Convention on Biological Diversity established certain principles and objectives that biodiversity prospecting contracts might follow. The article then examines the evolution of

private bioprospecting contracts, contractual provisions that promote the conservation, sustainable development and protection of indigenous intellectual property and discusses possible frameworks for ensuring biodiversity conservation, equity and economic development. In conclusion, the authors argue that bioprospecting is an important tool that can be used to foster the conservation of biodiversity through the creation of a natural products industry in developing countries.

Sedjo, Roger A. 1992. "Property rights, genetic resources and biotechnological change." *Journal of Law and Economics* 35(1): 199-213.

Discusses wild genetic resources and their uses, and demonstrates that these resources have elements of both public and private goods. The author argues that the lack of property rights associated with the public good aspect of genetic resources contributes to the current rates of tropical deforestation and habitat destruction. The article draws some conclusions about the property-rights mechanism that appears to be most effective for natural and wild genetic resources.

Shiva, Vandana. 1993. *Monocultures of the mind*. Malaysia: Third World Network.

This book contains five essays which reflect on the causes of disappearance of biological diversity and the challenge of conserving it. The essays range in topic from explanations for the spread of monocultures to a critique of the Biodiversity Convention. The author argues that the expansion of monocultures through the spread of biotechnology and agricultural movements such as the Green Revolution, has more to do with politics and power than with enriching and enhancing systems of biological production.

Sieback, W.E.; Evenson, R.E.; Lesser, W.; and Primo Braga, C.A. eds. 1990. *Strengthening protection of intellectual property in developing countries: A survey of the literature*. Washington, DC: World Bank.

Asserts that developing countries are being urged to strengthen intellectual property protection. This literature survey seeks to find out whether developing countries will benefit economically from strengthened IPR regimes. It concludes that information required to provide definitive answers is lacking and proposes a research agenda to investigate the issues.

Verma, S.K. 1995. "TRIPs and plant variety protection in developing countries." *European Intellectual Property Review* 17(6): 281-9.

This article examines the effect of the 1994 Trade Related Intellectual Property Rights (TRIPs) Agreement on plant variety protection from the point of view of developing countries. It provides an overview of the historical development of the current position on plant variety protection, a description of the salient features of the International Convention for the Protection of New Varieties of Plants (UPOV Convention), and a discussion of breeder's rights. In conclusion, the author argues that the TRIPs agreement is seen as an encouragement for foreign breeders to develop, sell, import and propagate their new plant varieties in developing countries.

Weiner, J.G. 1987. "Protection of folklore: A political and legal challenge." *International Review of Industrial Property and Copyright Law* 18(1): 56-92.

Begins with a definition of folklore in order to understand what the law is trying to protect. It then proceeds to examine the various reasons for the genesis of this effort, followed by an explanatory discussion of the basic structural societal differences that have led to this potential crossroads in lawmaking and thinking. It ends with an examination of various possible forms of folklore protection, as well as a critique of the recent model laws and proposals. Included in this

examination is a consideration of the idiosyncrasies of folklore that may render its adequate protection under existing measures difficult or impractical.

World Intellectual Property Organization. 1988. *Background reading material on intellectual property*. Geneva, Switzerland: World Intellectual Property Organization.

An IPR sourcebook from an organization that administers many IPR conventions, this book provides detailed explanations of all IPR types recognized under Western legal systems.

Yamin, F. 1995. "Biodiversity, ethics and international law." *International Affairs* 71(3): 529-46.

This article examines the ethical dimensions of the problem of global biodiversity loss by reference to the 1992 Convention on Biological Diversity. It suggests that biodiversity conservation issues require us to clarify the moral and ethical foundations of our relationship to the natural world and to each other. The author argues that this might require the development of a new theory or theories of ethics and of international distributive justice to encompass the distribution of goods, opportunities and other resources between humans and non-human elements of nature. They suggest that such theories would assist the explication, implementation and future development of the Convention.

Yamin, E. and Darrell A. Posey, 1993. "Indigenous peoples, biotechnology and intellectual property rights." *Review of European Community and International Environmental Law* 2(2): 141-8.

Reviews the various international organizations, conventions, declarations, and existing intellectual property rules that could be used to help indigenous people protect their knowledge, folklore, crafts and biodiversity.

Yano, L.I. 1993. "Protection of the ethnobiological knowledge of indigenous peoples." *UCLA Law Review* 41(2): 443-86.

This article begins with the assumption that indigenous ethnobiological knowledge should be protected and its use compensated. Section I summarizes the problems arising from the question of whose knowledge is being rewarded. Section II applies the current interpretation of United States patent law to the protection of ethnobiological knowledge and concludes that existing laws are inadequate means of providing such protection. Section III addresses the patent system from an economic perspective and shows that the theoretical rationale for patent system supports its extension to ethnobiological knowledge. This section also looks at contracts, treaties and repatriation as possible alternatives to patent protection. The author concludes that patent protection should be extended to include the ethnobiological knowledge of indigenous peoples

II. DNA and Intellectual Property Rights

Barton, J.H. 1991. "Patenting life." *Scientific American* 264(3): 40-6.

Asserts that although the patenting of life-forms is rapidly expanding in the US, which now provides intellectual property protection to microbes, plants and animals, certain peculiarities of living things raise problems for which there are few precedents in patent law. The goal of the article is to identify and explore the major issues surrounding biotechnology patents. The author reviews the general rationale for patents, addresses questions posed by the problem of patenting gene sequences, and discusses international patent issues related to trade. The author argues in favor of the spread of intellectual property rights systems to include biotechnology and life-forms,

asserting that such a development will encourage companies to invent unique genes for disease resistance, better protein quality, and other traits.

Cavalli-Sforza, L.L. et al. 1991. "Call for a worldwide survey of human genetic diversity: A vanishing opportunity for the Human Genome Project." *Genomics* 11: 490-1.

This article takes the position that the Human Genome Project will help scientists to understand human diversity responsible for normal variations and inherited diseases. The author argues that the populations that can tell us the most about our evolutionary past are isolated indigenous populations which have more informative genetic records. He calls upon geneticists and public and private agencies to collaborate in collecting sufficient material to record human ethnic and geographic diversity before this possibility is irretrievably lost.

Coghlan, A. 1995. "Licensed to sell the stuff of life." *New Scientist* February 11: 12-3.

A brief article reporting on the debates generated in Europe about the patenting of DNA and other life forms. Among the groups investigating this issue are the Human Genome Organization, an international coalition of scientists working towards unraveling the genetic blueprint of human beings, and a group of lawyers at the University of Glasgow, who are aiming to design a new system to replace gene and protein patents. The author contrasts European thought on patents, where morality issues are considered to be within the realm of the patent system with North American views, which consider morality issues to lie outside the patent system.

Gannon, P.; Guthrie, T.; and Laurie, G. 1995. "Patents, morality and DNA: Should there be intellectual property protection of the Human Genome Project?" *Medical Law Journal* 1: 321-45.

Examines the appropriateness of using existing patent laws to secure protection of the work being carried out on the Human Genome Project. Both ethical and practical problems are explored. The article suggests that it might be appropriate to consider alternative means of rewarding those involved in unraveling human DNA. It concludes by outlining some measures that should be considered in developing such an alternative.

Geraldi, Alan. 1991. "In his image: On patenting human-based bioproducts." *University of San Francisco Law Review* 25 Spring: 583-604.

Part I of the article presents a brief discussion of the development of the law concerning patents and the US Patent and Trademark Office's (PTO) policies. Part II discusses the PTO's interpretation of existing law and the problems it creates for researchers working to develop human-based bioproducts. Part III argues that existing law should be interpreted to favor granting patents for genetically engineered human-based products. The final section also proposes a comprehensive Human Biotechnology Patent Protection Act which provides guidelines to patent human-based bioproducts and is intended to help avoid future patent application processing problems.

Gross, Neil. 1996. "Who owns the tree of life?" *Business Week* November 4: 194-7.

Reviews the major positions taken in the debate over patenting human genetic material. The authors claim that any change in the current patent system has important consequences for the biotechnology industry and medical research that are grounded in firm protection for intellectual property. Specific cases of attempts to patent genes by different organizations and companies are mentioned but not discussed in great detail.

Kass, L.R. 1981. "Patenting life." *Journal of the Patent Office Society* November 63 (11): 571-600.

Uses the Chakrabarty case (in which the Supreme Court ruled that a living microorganism was patentable material) in order to reflect on modern science, politics, and the prevailing view of man's place in and attitude toward the natural world. It begins with a history of the purpose of science and of patent law, and asks if patent laws do not always serve the public or political good, are they simply good for science? The author concludes that we must reacquire a respect for all life forms and recognize that truth is neither private nor property, but rather comes unbidden to the mind.

Lewin, R. 1993. "Genes from a disappearing world." *New Scientist* May (29): 25-9.

The article reports on the heated debate about genetics, race and human welfare, generated by the international project to collect DNA fingerprints from ethnic groups on the verge of extinction. The history of the project is discussed, along with scientists, anthropologists and indigenous activists' reactions towards the project. The author points out that as the American and European diversity project move towards implementation, the scope for professional conflict will deepen.

Poste, George. 1995. "The case for genomic patenting." *Nature* 378 (7): 534-6.

A brief article summarizing recent debates over genomic patenting. The author argues that opposition to the patenting of genomic inventions will erode the foundation of intellectual property rights that are needed to convert innovative research into new drugs, vaccines and diagnostic tests.

Spiwak, D. 1993. "Gene genie and science's thirst for information with indigenous blood." *Abya Yala News* 7(3-4): 12-4.

Provides a condemnation of the Human Genome Diversity Project from the viewpoint of indigenous people.

Walden, I. 1993. "Intellectual property in genetic sequences." *Review of European Community and International Environmental Law* 2(2): 126-35.

Discusses the benefits and limitations of granting countries intellectual property rights over their genetic diversity, which would require these countries to control access to their resources. The author's analysis of legal protection of genetic information through a *sui generis* system indicates that such an approach could be difficult to achieve.

III. Historical and Theoretical Accounts of Intellectual Property Rights

Bellagio Declaration. "Cultural agency/cultural authority, politics and poetics of intellectual property in the post-colonial era." In J. Boyle. 1996. *Shamans, software and spleens: Law and the social construction of the information economy*. Cambridge, MA: Harvard University Press.

Asserts that the dependence of intellectual property rights on the concept of individual authorship denies similar rights to many other creative sources such as the scientific and artistic contributions of nonwestern cultures. The authors advocate neighboring or related rights as an alternative system for the protection of folklore, cultural heritage and ecological know-how.

Berkes, Fikret, ed. 1989. *Common property resources: Ecology and community-based sustainable development*. London & New York: Belhaven Press.

The aim of this volume of essays is to identify and explain concepts from the natural and social sciences that are central for the management of common-property resources. The volume focuses primarily on communal resource-management systems, and attempts to balance out a strategy of the commons model of explanations, by inviting resource managers and development planners to integrate local-level management into the existing common-property resource management framework. Part I of the book deals with perspectives on resource management. Part II deals with the shortcomings of neoclassical economics, Part III offers single-resource case studies and Part IV offers multiple-resource cases. The editors argue that taken as a whole these essays show that different kinds of solutions to the commons dilemma may be complementary.

Boyle, James. 1996. *Shamans, software and spleens: Law and the construction of the information society*. Cambridge, MA: Harvard University Press.

The author of this book uses his legal background to construct a social theory of the information society. Central to his analysis is a critique of the notion of authorship upon which Western IPR are founded. This notion is blamed for the restriction of information and stifling of information under existing intellectual property regimes.

Escobar, Arturo. 1995. *Encountering development: The making and unmasking of the Third World*. Princeton, NJ: Princeton University Press.

This book shows how development policies became mechanisms of control that are just as pervasive and effective as their colonial counterparts. According to the author, the development apparatus generated categories that can be seen as a historically and culturally specific project whose emergence must be denaturalized and made strange.

Fowler, Cary and Pat Mooney. 1990. *Shattering: Food, politics and the loss of genetic diversity*. Tucson, AZ: University of Arizona Press.

Examines how increasingly mechanized forms of agricultural production have destroyed the complex environmental interrelationships that hold the natural world together. The first section of the book describes the origins of agriculture, the development of biological diversity and the first stages of genetic erosion. The second section focuses on the rise of genetic technology and the politics of genetic resource control. The authors argue that the arrival of the green revolution and new forms of biotechnology may lead to a new wave of genetic erosion.

Juma, Calestous. 1989. *The gene hunters: Biotechnology and the scramble for seeds*. Princeton, NJ: Princeton University Press.

This book contends that the potential impacts of advances of biotechnology will not only be irreversible but will introduce major and unpredictable transformations in the global organization and distribution of food production. Focusing primarily on the case of Africa, the book uses historical and contemporary research to understand how the recent advances in the capacity to modify plant and animal life might pose new challenges to African economies. The study as a whole is intended to show the options available to African countries, given their current economic and ecological crises. The author argues that in order to sustain itself Africa must innovate at technological, institutional and political levels; conventional agriculture and industry must adapt to the emerging transformations as must the intellectual as well as the policy environment.

Kloppenburg, Jr., Jack. 1992. "Conservationists or corsairs?" *Seedling* June/July: 12-7.

A brief interview with rural sociologist, Jack Kloppenburg, in which he analyses the recent trend to commodify rainforest areas. Special attention is given to Costa Rica's National Institute for Biodiversity's (INBio) million-dollar contract with Merck pharmaceutical company to develop

new products from the Costa Rican rain forest. Kloppenburg argues that the contract is inadequate on several accounts, and that it should be the task of NGOs to illuminate the range of choices that must be developed for managing equitable national and international preservation.

Kloppenbug, Jr., Jack. 1988. *First the seed: The political economy of plant biotechnology*. Cambridge, UK: Cambridge University Press.

This book provides a broad history of changes in plant breeding and the seed industry. It examines the economic, social and political aspects of plant improvement, concentrating in particular on the profound changes that occurred as hybrid corn came to dominate North American fields. The book also examines more recent agricultural changes, such as the Green Revolution, and attempts to look into the future and to explore the promises and pitfalls of genetically engineered crops. One of the author's driving concerns is to understand how seeds became an integral part of the capitalist market system and how they helped to pull farmers into that system as well.

Kloppenbug, Jr., Jack. ed. 1988 *Seeds and sovereignty: The use and control of plant genetic resources*. Durham, NC: Duke University Press.

This book offers a series of essays that outline different positions in the debate over the ownership of plant genetic resources and their potential value as commercial goods. The authors include articles from the fields of the social and natural sciences as well as from business, governmental agencies and international institutions. Hence a variety of ideological positions are covered.

Kloppenbug, Jr., Jack. 1991. "No hunting! Biodiversity, indigenous rights and scientific poaching." *Cultural Survival Quarterly* 15(3): 14-8.

Contends that the value of Third World genetic resources is very high. It goes on to state that northern agricultural development is the result of the free transfer of these resources. Although biotechnology is increasing the value of these resources, the South is not benefiting. The author argues that indigenous people must become more aware of this situation, and that their property rights must be respected for benefits to be fairly shared.

Kloppenbug, Jr., Jack and Tirso Gonzales. 1994. "Between state and capital: NGOs as allies of indigenous peoples." In Thomas C. Greaves, ed. *Intellectual property rights for indigenous peoples: A sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 163-77.

Examines the benefits and tradeoffs that indigenous people have to consider when forging alliances with NGOs. The article contends that NGOs have become ubiquitous in national and international political processes. The author argues that in seeking intellectual property protection local indigenous groups stand to gain from allying with NGOs, particularly from the communications capabilities, knowledge, funding and staff labor of NGOs that are indispensable to the attainment of the groups' goals. However, he also points out that indigenous groups must be attentive to the drawbacks and costs associated with these alliances, even when NGOs are led by leaders who are themselves of indigenous origins.

Peng, M.K.K. 1990. "The Uruguay round and the Third World." *The Ecologist* 20(6): 208-13.

This is a brief survey of how the latest round of General Agreement on Trade and Tariff (GATT) negotiations have affected developing countries' economies. The author argues that by including services, investments and intellectual property rights under the umbrellas of the GATT, transnational companies will have free reign to invest and operate in developing countries, thereby

undermining the growth of national economies. Developing countries' responses to the Uruguay round are discussed.

Raghavan, C. 1990. "Recolonization: GATT in its historical context." *The Ecologist* 20(6): 205-7.

Provides a brief history of the General Agreement on Trade and Tariffs (GATT) and argues that it allows industrialized countries to extend their control over the global economy. The author places the GATT within a long trajectory of colonialism and military intervention into developing countries.

Ring, Maria Aparecida. 1990. "Intellectual property rights protection: The case of patents in the Brazil pharmaceutical industry." M.A. Thesis for the University of Texas at Austin. Unpublished document.

Thesis provides a chronology of the United States and Brazilian debate on patent protection for pharmaceuticals. The ideologies underlying each position and the Brazilian plan for national pharmaceutical production are also discussed. Within the thesis, the author examines how the Brazilian pharmaceutical industry fits into the international picture; how the Brazilian government incorporated the non-recognition of patents into policies aimed at stimulating local industry and finally, how intellectual property rights protection has been treated previously and what current efforts are being made to alter this treatment at an international level. The author concludes that US and Brazilian representatives hold views so diametrically opposed on the issue of patent protection for pharmaceuticals that it would be difficult for the two countries to reach a definitive agreement during the 1994 Uruguay round of GATT negotiations.

Strathern, Marilyn. 1996. "Potential property: Intellectual property rights and property in persons." *Social Anthropology* 4: 17-32.

A fad-driven anthropological article which charts the emerging constellation of Euro-American property interests in which potentiality plays a central role. The author discusses four candidates for ownership as products of: cultural property, intellectual property, bodily property and professional commitment. In conclusion the author argues that ownership re-embeds ideas and products in an organism.

Weissman, R. 1990. "Patent plunder: TRIPping the Third World." *Multinational Monitor* November: 8-18.

This is a journalistic article that discusses developed countries' allegations that developing countries are stealing billions of dollars worth of goods each year by not respecting intellectual property rights, and developing countries' responses to these charges. The article reviews the negotiations that took place during the Uruguay Round of GATT negotiations regarding intellectual property, and brings up specific examples regarding intellectual property protection and pharmaceuticals. The author points out that the adoption of the industrialized countries' intellectual property proposals might solidify multinational companies' control over valuable resources located in the developing world as well as strengthen their dominance over high technology.

Woodmansee, Martha. 1984. "The genius and the copyright: Economic and legal conditions of the emergence of the author." *Eighteenth Century Studies* 17(4): 425-48.

Traces the history of the "author" from its rise in the 18th century among a new group of individuals who earned their livelihood from the sale of their writings to the new and rapidly expanding reading public. The article presents several philosophers' views on the subject of the author including Herder, Goethe, Fichte and Krause. The author argues that all of these

philosophers share the belief that criticism has to do with the recovery of a writer's meaning, and that they all take for granted the concept of the author that evolved during the 18th century.

Yapa, L. 1993. "What are improved seeds: An epistemology of the green revolution." *Economic Geography* July, 69(3): 254-72.

This article takes the position that the principal problem of poverty in the developing world lies in the process of development itself, and that modern poverty is a form of development-induced scarcity. The author argues that our view of poverty must be radically altered to include an understanding of how we have come to define poverty. This position is supported by examining the case of Green Revolution and its epistemic transformation from seeds of plenty to seeds of scarcity.

Zerner, Charles. 1996. "Telling stories about biological diversity." In Stephen B. Brush and Doreen Stabinsky, eds. *Valuing local knowledge: Indigenous people and intellectual property rights*. Washington, DC: Island Press, pp. 68-101.

Article examines the project mission statements and narratives of two global scientific enterprises—the Systematics Agenda 2000: Charting the Biosphere, and several biodiversity conservation projects of the World Bank's Global Environmental Facility. Through an analysis of how their narrative compositions are constructed, Zerner argues that human communities and their contributions to biological diversity.

IV. Case Studies

Axt, J.R.; Corn, M.S.; Lee M; and Ackerman, D.M. 1993. *Biotechnology, indigenous peoples and intellectual property rights*. Washington, DC: Congressional Research Service, Library of Congress.

A Congressional Research Report which examines intellectual property rights in the context of medicinal products and processes derived from the biodiversity resources of indigenous peoples. Questions addressed include: Will current interest in biodiversity screening help preserve biodiversity and indigenous peoples? Does intellectual property law give indigenous peoples any claim to economic benefit that might accrue from the screening of local flora and fauna and the subsequent development of drugs? What are the alternative arrangements that have been made to provide economic benefit? The report provides background and context for this subject, summarizes ongoing debate about the definition of indigenous peoples, and explores how these issues have been treated by the Biodiversity Convention, and in the GATT. It also includes an appendix that provides the text of the National Cancer Institute's Letter of Intent regarding biodiversity screening.

Benjamin, C. 1997. "Biopiracy and native knowledge." *Native Americas* Summer: 22-31.

A journalistic article reviewing the basic issues involved in the use of indigenous peoples' biological resources by multinational companies. Specific cases are mentioned such as the recent patenting by US scientists of quinoa, a cereal grain from the Andes. Indigenous peoples' efforts to resist the wholesale appropriation of their resources are also chronicled. Author argues that the UN must recognize a system of collective, intergenerational rights.

Brush, Stephen B. 1993. "Indigenous knowledge of biological resources and intellectual property rights: The role of anthropology." *American Anthropologist* 95(3): 653-86.

Article provides a brief history of the creation of intellectual property rights, reviews the contributions of indigenous knowledge, and discusses three approaches to compensating indigenous knowledge as well as reviewing several commonly cited obstacles to implementing intellectual property rights. The author argues that other ways of constituting rights, such as guaranteeing human, cultural, or land rights, might be more effective in meeting the goals of conserving indigenous knowledge and providing more equitable treatment for indigenous peoples. He concludes by discussing possible roles for anthropologists to play in debates about indigenous knowledge and resources and intellectual property rights.

Brush, Stephen B. 1994. "A non-market approach to protecting biological resources." In Thomas C. Greaves, ed. *Intellectual property rights for indigenous peoples: A sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 131-43.

Asserts that for indigenous societies, rights over the control of, and commercialization of plant varieties is a central issue, because it is where the greatest commercial pressure and potential is. Contrary to many other sources, this article finds intellectual property laws to be an unpromising solution to protecting indigenous peoples' rights. The author argues that few states will be willing to impose the costs and inefficiencies of monopolies for the rights of minority populations. The article concludes by suggesting that with respect for plant varieties, indigenous leaders and their allies may find more success under a rapidly broadening international legal concept—farmers' rights.

Brush, Stephen B. and Doreen Stabinsky, eds. 1996. *Valuing local knowledge: Indigenous people and intellectual property rights*. Washington, DC: Island Press.

This book offers a series of essays that consider a mercantile approach to promote both cultural survival and biological conservation. The editors argue that cultural or indigenous knowledge should be treated as a form of intellectual property in order to increase the economic return from biological resources maintained by peasants and tribal people. It is further argued that turning public goods, such as knowledge and biological resources into commodities could enable traditional peoples to profit from their knowledge and from conserving plant resources. The essays are all taken from the proceedings of the 1993 conference on IPR and indigenous knowledge that took place at Lake Tahoe. They include case studies and theoretical analyses on equity and indigenous rights, conservation, knowledge and property, and policy options and alternatives.

Brush, Stephen B. 1996. "Is common heritage outmoded?" In *Valuing Local Knowledge: Indigenous people and intellectual property rights*. Washington, DC: Island Press.

Article discusses alternative mechanisms for rewarding and sustaining conservation of agricultural genetic resources. The author argues that privatization and compensation through intellectual property law will not generate the needed conservation of genetic materials necessary to the world's future food supply. He proposes that a system of farmers' rights, which acknowledge our common heritage, would support farmers in their efforts to conserve crop genetic resources.

Chapman, Audrey R. 1994. "Human Rights implications of indigenous peoples: intellectual property rights." In Thomas C. Greaves, ed. *Intellectual property rights for indigenous peoples: A Sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 209-22.

This article examines the prospects of linking the intellectual property rights of indigenous peoples to the slowly growing corpus of internationally recognized human rights. The article contends that nation states have resisted pressures to give indigenous peoples economic and cultural rights, regarding them as threats to the states' authority over the citizens and lands within their respective boundaries. Thus internationally honored agreements have been slow to come.

The author reviews human rights agreements currently in force, and concludes by suggesting four strategies where progress toward the protection of indigenous intellectual property might be gained.

Clay, J.W. 1991. "Cultural survival and conservation: lessons from the past twenty years." In Margery L. Oldfield and Janis B. Alcorn, eds. *Biodiversity: Culture, conservation and ecodevelopment*. Boulder, CO: Westview Press, pp. 248-73.

Contends that indigenous organizations have found that land rights and the development of sustainable resource management systems should be top priorities. Several case studies are presented within the article in order to demonstrate this reality.

Cox, P.A.; and T. Elmqvist. 1991. "Indigenous control of tropical rainforest reserves: An alternative strategy for conservation." *Ambio* 20(7): 317-21.

Asserts that extant strategies for acquiring land for tropical-forest reservations (such as debt-for-nature swaps, designation of National Parks on government-owned land, and outright purchase of private lands) may be inappropriate when the areas are already occupied by indigenous peoples. The article then examines three rain-forest reserves which were created in Samoa using alternative strategies: 1) A US National Park in American Samoa which involves the long-term lease of customary lands with local chiefs forming an advisory board on park policy; 2) A covenant established between villagers in Western Samoa who pledged to preserve and manage a large rain forest and private donors who provided the funds for the construction of an elementary school; and 3) A covenant established between a village in Western Samoa, which vowed to preserve and manage the forest, and the Swedish Society for Nature Conservation (SNF) which provided funds for an elementary school and public works. The author argues that these reserves suggest that under indigenous control robust solutions to the problems of rainforest preservation can be achieved.

Davis, Shelton H. 1993. "Hard choices: Indigenous economic development and intellectual property rights." *Akwe:kon Journal* Winter: 19-24.

Article discusses the growing awareness of and interest in the role that tropical forest plants can play in the economic development of developing countries and indigenous communities. The author argues that although indigenous intellectual property rights must be legally recognized and protected for the purposes of maintaining the cultural integrity of indigenous communities, they will not necessarily lead to indigenous economic development and prosperity. He also reminds readers that the struggle for the recognition of intellectual property rights over medicinal plants and other genetic material is only one of the many challenges which indigenous people face in the preservation of their cultures and the development of their communities.

Davis, Shelton H. and K. Ebbe, eds. 1995. "Traditional knowledge and sustainable development." *Environmentally Sustainable Development Proceedings Series 4*. Washington, DC: World Bank.

This report records the proceedings of a 1993 World Bank Conference on the topic of Traditional Knowledge and Sustainable Development. The first section of the report summarizes the conference itself. The second section provides a transcript of a roundtable discussion that took place on the day following the conference that presents many of the key issues related to traditional knowledge and development, which were raised by indigenous participants. The organizers of the conference argue that the challenge is less one of supporting one form of knowledge or another than of finding areas in which traditional knowledge and Western science can mutually support each other in the common quest for solutions to what have often been intractable local and global problems.

Entine, Jon. 1996. "Let them eat Brazil nuts: The rainforest harvest and other myths of green marketing." *Dollars and Sense* March/April: 30-7.

An article examines Ben & Jerry's recent attempts to use Brazil nuts harvested by indigenous peoples in their rainforest crunch ice cream in order to question the compatibility of business, social and environmental responsibility. A brief history of green marketing is provided and other businesses involved in these efforts are mentioned. The author argues that progressive businesses often treat their own workers poorly, and make only superficial attempts at environmental or social reforms.

Falk, R. 1988. "The rights of peoples, in particular indigenous peoples." In J. Crawford, ed. *The rights of peoples*. Oxford, UK: Clarendon Press, pp. 17-37.

This article claims that there is a tension in international law between the territorial sovereignty of governments and the status of individuals and groups as beneficiaries of human rights. This tension is being resolved in favor of the state, but the author argues that it is also being challenged by claims by and on behalf of indigenous peoples for recognition of their group rights.

Gray, Andrew. 1990. "Indigenous peoples and the marketing of the rainforest." *The Ecologist* 20 (6): 223-7.

Article suggests that the marketing of sustainably produced rainforest products is being touted by environment and development organizations as a key to saving the rainforests. The author argues that there is a danger that if indigenous peoples are not given control over the marketing of rainforest products, they will become dependent on outside forces over which they have no control and which will eventually lead to the destruction of both indigenous societies and the rainforest.

Greaves, Thomas C. 1995. "Cultural rights and ethnography." *General Anthropology* 1(2): 1-6.

Describes the rapidly growing salience of intellectual property and cultural rights that are on the agendas of indigenous societies throughout the world. The last section discusses the implications of the growth and spread of IPR for research anthropologists, ethnobotanists, applied anthropologists and other professionals. Author argues that anthropologists need to recognize that as soon as ethnographic data is published it enters the public domain and ceases to be under the control of the source societies.

Greaves, Thomas C., ed. 1994. *Intellectual property rights for indigenous peoples: A Sourcebook*. Oklahoma City, OK: Society for Applied Anthropology.

A series of thirteen essays looking at the issue of intellectual property rights and indigenous peoples. The first six chapters provide examples of how intellectual property rights have been used in specific local cases. The next seven chapters consider the conceptual and political challenges to intellectual property rights. In his introduction and conclusion, the editor argues that the most compelling news about intellectual property rights is occurring at the grass roots level, and that it is these local successes that will ultimately provide the additional energy necessary to break through intransigence at the national level. The editor also makes clear that one of most important purposes of the book is to facilitate further explorations of intellectual property rights between interested parties.

Herle, A. 1994. "Museums and shamans: A cross-cultural collaboration." *Anthropology Today* 10(1): 2-5.

This article charts the recent collaboration between the Cambridge University Museum of Archaeology and Anthropology (CUMAA) and a practicing Pachyu shaman, to display a collection of Tamu shamanistic material from Nepal with the assistance of anthropologist Judith Pettigrew. The author asserts that the most important decision made regarding this collection has to do with ownership. According to the article, although it was mutually agreed with the shaman that the collection was made for the museum and that the museum “owned” the artifacts in question, it became evident that the shaman and the museum had a different understanding of the concept of “ownership.” The author argues in favor of maintaining an open, flexible and less proprietorial attitude to curatorship.

Iwu, Maurice M. 1996. “Biodiversity prospecting in Nigeria: Seeking equity and reciprocity in intellectual property rights through partnership arrangements and capacity building.” *Journal of Ethnopharmacology* 51: 209-19.

Examines the policies of an international NGO based in Nigeria which has adopted an innovative model for biological prospecting based on establishing strategic partnerships and capacity building. The author argues that for any discussion on intellectual property rights to be useful, it must address the fundamental concern of restructuring international trade and economic relationships so that biological resources can be used to enable the poor to achieve sustainable livelihoods.

King, Steven R. 1994. “Establishing reciprocity: Biodiversity, conservation and new models for cooperation between forest-dwelling peoples and the pharmaceutical industry.” In Thomas C. Greaves, ed. *Intellectual property rights for indigenous peoples: A Sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 69-82.

This article discusses Shaman Pharmaceutical, Inc., a pharmaceutical company that has pioneered a pattern of corporate relationships directly with indigenous societies and organizations, and made a commitment to provide indigenous peoples with direct compensation. The practical dilemmas of distributing IPR compensation are numerous, and the company’s solutions are described in detail within the article. The authors argue that the contracts used by Shaman Pharmaceutical could be insisted upon by other indigenous groups when they are approached for botanical prospecting, or adopted by other corporations as preferred practice.

King, Steven R. 1996. “Biological diversity, indigenous knowledge, drug discovery and intellectual property rights: Creating reciprocity and maintaining relationships” in *Journal of Ethnopharmacology* 51: 45-57.

Written by employees of Shaman Pharmaceutical, Inc, this article describes some of the compensation strategies being used by the pharmaceutical company during the drug discovery process. It also tracks attempts made to funnel resources to partner communities through an independent nonprofit organization, the Healing Forest Conservancy.

McGowan, Janet. 1991. “Who is the inventor?” *Cultural Survival Quarterly* 15(3): 20.

This article asserts that US patent laws do not allow for the protection of discoveries of ethnobotanical information already known by indigenous people. The author argues that the award of patents to two companies based on properties of the neem seed appears to be a contradiction of patent law according to US interpretation of the law.

McGowan, Janet and Iroka Udeinya. 1994. “Collecting traditional medicines in Nigeria: a proposal for IPR compensation.” In Thomas C. Greaves, ed. *Intellectual property rights for indigenous peoples: A Sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 57-68.

This article describes a proposal presented to the International Cooperative Biodiversity Groups (ICBG) in order to compensate local people in Nigeria for the collection of traditional medicinal plants. The proposal outlines the specifics of the step-by-step incremental compensation, the participation of both village-level and regional organizations, the fee percentages assigned, and the trust disbursement mechanism. Although the unique aspects of any actual project insure that this proposal will differ from other IPR contracts, readers should find an array of concrete ideas which they might apply to their own work.

McNeil, R.J. and M.J. McNeil. 1989. "Ownership of traditional information: Moral and legal obligations to compensate for taking." *Northeast Indian Quarterly* Fall: 30-5.

Asserts that when knowledge is transferred from indigenous peoples to ethnobotanists and others, the knowledge providers should be better protected by the legal system. The author suggests that existing concepts adopted by legal systems, such as property theory and contract doctrines, provide a model and perhaps a mechanism for such protection.

Messenger, P.M. 1989. *The ethics of collecting cultural property: Whose culture? Whose property?* Albuquerque, NM: University of New Mexico Press.

This book offers a series of essays focused on ethical dilemmas confronting archaeologists. Within the essays, questions are posed such as: Who owns the archaeological record? Do people have the right to collect artifacts from privately owned land? Should all archaeological finds remain in their country of origin, even if they have inadequate museum facilities? A range of perspectives on issues relating to ownership and preservation of artifacts of past cultures is presented, and all of the essays make clear that archaeologists are a long way from even slightly definitive solutions to ethical problems.

Pacific Concerns Resource Centre (PCRC). 1995. *Proceedings of the indigenous peoples' knowledge and intellectual property rights consultation, April 1995, Suva, Fiji*. Suva, Fiji: Pacific Concerns Resource Centre.

Proceedings of the United Nations Development Program-sponsored consultation on IPR in which indigenous peoples from the Pacific region met to discuss common concerns related to traditional knowledge, resources and intellectual property rights.

Pinel, Sandra Lee and Michael J. Evans. 1994. "Tribal sovereignty and the control of knowledge." In Thomas C. Greaves, ed. *Intellectual property rights for indigenous peoples: A Sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 41-55.

This article describes three cases in which the Pueblo Indians from the American Southwest have sought to prevent the use of their sacred symbols by outsiders in mundane and disrespectful settings, and the difficulties that those efforts have encountered. The nature of Western principles of law and rules supporting concepts of public domain and the rights of an entrepreneur are discussed within the article. The authors conclude that in many cases the best strategy for the Pueblo Indians is to enter the marketplace on their own terms, and to avoid telling outsiders anything.

Plotkin, Mark J. and L. Famolare, eds. 1992. *Sustainable harvest and marketing of rainforest products*. Washington, DC: Conservation International and Island Press.

Based on papers presented at the conference on the sustainable harvest and marketing of rainforest products held in Panama City in June of 1991. The book is divided into the following sections: conserving ethnobotanic information; the potential of non-timber forest products; palms and their potential; plants as medicines; and reaching international markets.

Posey, Darrell A. and Graham Dutfield. 1996. *Beyond intellectual property: Toward traditional resource rights for indigenous peoples and local communities*. Ottawa, Canada: International Development Research Center.

This book is a comprehensive resource guide to the issues that surround the use of intellectual property rights to compensate indigenous peoples. Although the guide starts out with what might seem to be simplistic treatments of questions such as: Who visits communities and what are they seeking? What happens to traditional knowledge and resources? and Who benefits from traditional resources? For undergraduates or other people trying to come to terms with the basic issues involved in IPR, this is an excellent place to begin. The book also provides an outstanding appendix that contains the names of people and organizations that are actively involved in these issues including email links, worldwide web addresses and an extensive annotated bibliography.

Posey, Darrell A. 1990. "Intellectual property rights and just compensation for indigenous peoples." *Anthropology Today* 6(4): 13-6.

An early article addressing the issue of compensation for indigenous peoples' knowledge and resources. Author argues that each indigenous group must have the option to enter into market economies or not, and must further be able to decide on the extent and circumstances under which they want to do so. Examples of Brazilian indigenous activism against the free appropriation of natural resources are highlighted.

Posey, Darrell A. 1994. "International agreements and intellectual property right protection for indigenous peoples." In Thomas C. Greaves, ed. *Intellectual property rights for indigenous peoples: A Sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 223-51.

Contends that the way IPR for indigenous peoples is currently constructed within international law and practice is highly ambiguous. The author identifies nine areas of international agreements where elements of IPR relevant to indigenous peoples occur, and out of which a more solid base of assumptions and definitions could emerge. He concludes the article by arguing that the lead must be taken by indigenous people themselves, and that the definition and boundaries of IPR should not be defined prematurely lest new applications, indigenous input and sources of strength be precluded.

Posey, Darrell A. 1995. *Indigenous peoples and traditional resource rights: A basis for equitable relationships?* Oxford, UK: Green College Centre for Environmental Policy and Understanding.

This paper proposes an alternative concept to intellectual property rights: traditional resources rights. It argues that access to biological resources and benefit sharing from their use and application are essential elements of the Convention on Biological Diversity. Although it has been assumed that IPR would be a key mechanism to implement the CBD in these areas, the author argues that indigenous peoples see IPR as being a threat to their knowledge and well-being.

Roht-Arriza, N. 1996. "Of seeds and shamans: The appropriation of the scientific and technical knowledge of indigenous and local communities." *Michigan Journal of International Law* 17 Summer: 1-47.

Reexamines the debates over access to, and control over, genetic and biological knowledge and resources in terms of the appropriation of indigenous and local communities' knowledge and resources. The first part of the article discusses recent examples of appropriation as currently conducted by global biotechnology, pharmaceutical and agribusiness corporations, as well as by seed banks and research centers. The second part describes the mechanisms of appropriation by focusing on the limited and culturally determined definitions of wild, cultivated, knowledge,

innovations and inventions. Finally, the article proposes three possible frameworks for ending appropriation: broadened and redefined intellectual property regimes, private contracts between communities or States and bioprospectors, and the expansion and control of farmers rights to provide compensation and control to indigenous and local communities. The author argues that any solution to the issues of cultural appropriation in this area will require profound rethinking of how we define, empower, and protect indigenous and local communities.

Ruppert, David. 1994. "Buying secrets: Federal government procurement of intellectual cultural property." In Thomas C. Greaves, ed. *Intellectual property rights for indigenous peoples: A Sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 111-28.

This article analyzes the challenges encountered by indigenous communities and federal officials involved in IPR negotiations. According to the article, as tribal groups in the United States were removed from desirable lands and pushed onto reservations, countless sites that had provided spiritual anchorage to Indian people fell into the hands of strangers. In western states in particular, many such sites lie inside national parks, national and state forests and other public lands, which themselves are under intense pressures for expanded commercial or tourist exploitation. The author argues that the challenges posed to protecting these lands arise from legal constraints embedded in federal law.

Shiva, Vandana. 1993. *The Neem campaign*. Dehradun: Research Foundation for Science and Technology & Natural Resource Policy.

Provides a brief account of the Neem tree in western and traditional Indian culture. It superficially addresses the different ways that each culture manages knowledge, and discusses how Indian activists attempted to gain compensation for the use of the neem tree by pharmaceutical companies. Shiva provides enough information for a good case study but her analysis of broader situation is very brief.

Soleri, Daniela et al. 1994. "Gifts from the Creator: Intellectual property rights and folk crop varieties." In Thomas C. Greaves, ed. *Intellectual property rights for indigenous peoples: A Sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 19-40.

In this article the Zuni Indians share their experience, range of views and decisions affecting the use of their intellectual property by non-Zunis. According to the article, over the last several years the Zuni have raised the level of appreciation within the Zuni community for their traditional crop varieties. With this has come a heightened sense of concern for the disrespectful and commercial use of their resources. The authors argue that through this process the Zuni are moving towards more effective control over who may use these varieties and for what purposes. The article also contains a clear analysis of the local complexities that impede Zuni use of federal laws to protect their cultural heritage, and provides an example of the sort of questionnaire that can be effective for clarifying community attitudes toward the proper use of traditional cultural knowledge.

Suagee, Dean B. 1994. "Human rights and cultural heritage: Developments in the United Nations Working Group on Indigenous Populations." In Thomas C. Greaves, ed. *Intellectual property rights for indigenous peoples: A Sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 191-208.

This article presents the current agenda of the Working Group on Indigenous Populations, a United Nations sponsored group which provides indigenous people with a forum in which to interact with the community of nation-states, and in which to exercise their own sovereignty and contribution to the human community as a whole. The author identifies key documents that the group has recently produced, and details the ongoing controversy regarding whether IPR should be seen as a competing priority that should be subordinated to more pressing indigenous needs,

such as land and sovereignty, or whether these objectives can be pursued in concert. The author concludes by arguing for the latter.

Tickell, O. 1992. "Nuts, bucks and survival." *Geographical Magazine* August: 10-14.

Discusses the debate over the "rainforest harvest." The author contrasts the positions of Survival International and The Body Shop.

VI. Biological Resources and Ethnomedicine

Alcorn, Janis B. 1993. "Indigenous peoples and conservation." *Conservation Biology* 7(2): 424-6.

A comment on a piece written for *Conservation Biology* by Redford and Stearman (see below). In their article, Redford and Stearman identify major differences between the interests of indigenous peoples and conservationists. In response, this brief article expands the definition of indigenous and biological conservation, and challenges Redford and Stearman's assertion that indigenous peoples have presented themselves as conservationists only because they recognize the power of this concept in rallying support for land rights. The author argues that partnerships with indigenous peoples offer the best option for achieving on-ground conservation both inside and outside parks.

Balick, Michael J. and R. Mendelsohn. 1992. "Assessing the economic value of traditional medicines from tropical rainforests." *Conservation Biology* 6(1): 128-30.

Attempts to quantify the economic value of medicinal products found in the tropical forestland of Belize. The authors estimate that net revenue – that is the market value of plants sold to healers and pharmacists less the labor costs involved in collecting them – compares favorably with profits derived from agriculture.

Barton, J.H. 1994. "Ethnobotany and intellectual property rights." In G.T. Prance, Derek J. Chadwich and Joan Marsh, eds. *Ethnobotany and the search for new drugs*. Chichester, UK; New York, NY: John Wiley and Sons, pp: 214-21.

Argues that the most significant rights of indigenous peoples derive from physical control of the plants and the knowledge pertaining to their use. Author contends that pharmaceutical patents combined with trade secrecy can allow firms to develop and market products and ensure that the nation and or people(s) from which the material or information was derived are properly rewarded. He suggests that non-governmental organizations must exert pressure on the United Nations Convention on Biodiversity in order to create a binding agreement to protect these rights.

Boyd, Michael. 1996. "The position of intellectual property rights in drug discovery and development from natural products." *Journal of Ethnopharmacology* 51: 17-27.

Article offers some practical working definitions and perspectives on intellectual property and intellectual property rights as they pertain to the essential contributions of the parties to an international collaboration in drug discovery and development from natural products. The authors illustrate how suitable recognition and protection may provide the basis to ensure fair and appropriate compensation for contributions of existing intellectual property essential for the creation of new intellectual property.

Brush, Stephen B. 1992. "Ethnoecology, biodiversity, and modernization in Andean potato agriculture." *Journal of Ethnobiology* 12(2): 161-85.

Discusses the impact of technological modernization and social change on traditional potato diversity in the Andes of Peru. Author sites comparative research between two land valleys, which suggest that Andean farmers have maintained potato landraces even as they adopt modern agricultural inputs. He argues that consumption factors and a cultural emphasis on diversity in the ethnoecology of potatoes are important factors in farmer conservation of biological diversity in potatoes.

Cox, P.A. and Michael J. Balick. 1994. "The ethnobotanical approach to drug discovery." *Scientific American* June: 82-7.

Article reviews the history of the ethnobotanical approach to medicinal drug research and development from the perspective of scientific journal. Authors detail how ethnobotanists choose the societies they study, as well as the procedures that are used to gather plants from communities once consent has been given. The article ends by considering what is being done to protect the interests of indigenous peoples from whom the plants are taken. Examples are given from the authors' own experience as ethnobotanists.

Cunningham, A.B. 1993. *Ethics, ethnobiological research and biodiversity*. Gland, Switzerland: World Wide Fund for Nature.

This article addresses the ethical problems associated with ethnobiological and biochemical prospecting. It argues that to prevent loss of biodiversity, it is necessary to formulate guidelines for equitable partnerships in research and development on natural products. Several existing ethical guidelines are then reviewed. The article concludes with new recommendations for a code of practice developed by the author.

Elisabetsky, Elaine. 1991. "Folklore, tradition, or know-how?" *Cultural Survival Quarterly* Summer: 9-13.

Asserts that medicinal plant research has been a successful approach in the search for new drugs, and that the knowledge of medicinal plants preserved by indigenous specialists is crucial to the discovery of new plant-drugs. The author argues that we must gain the cooperation of indigenous people who can point out promising species for drug screening by creating the legal basis to ensure intellectual property rights at the local and national levels.

Elisabetsky, Elaine. 1991. "Sociopolitical, economical and ethical issues in medicinal plant research." *Journal of Ethnopharmacology* 3(2): 235-9.

This article asserts that although medicinal plant research usually starts with collection of indigenous medical knowledge, indigenous groups tend not to benefit from this collection. The author warns that many indigenous groups as well as governments perceive scientific research as imperialistic and are becoming reluctant to permit such research. She argues that unless equity issues are discussed and resolved, medicinal plant researchers will find themselves unable to carry out their research or, if allowed, they may be serving ethically dubious purposes.

Gadgil, M. 1987. "Diversity, cultural and biological." *Tree* 2(12): 369-73.

Article asserts that early human populations possessed high levels of cultural diversity dependent on and supportive of high levels of biological diversity. This pattern changed drastically with technological innovations that enabled certain human groups to break down territorial barriers and to usurp the resources of other groups. Traditions of resource conservation can re-emerge when the dominant cultures spread over the entire area and the innovations diffuse to other groups. The author argues that this could change once again as genetically engineered organisms become an

economically viable proposition with the accruing advantages concentrated in the hands of a few groups.

Gadgil, M. and Fikret Berkes. 1991. "Traditional resource management systems." *Resource Management and Optimization* 8(3-4): 127-41.

Explores the synthesis of traditional and scientific ecology. It begins by contending that the Western view that humans are entitled to dominate and use nature at will recognizes no limits to the exploration and modification of ecosystems. It goes on to point out that although this view has gradually changed since the mid-19th century, the science-based techniques of resource management that have since been developed are applicable primarily to single-species populations in highly simplified ecosystems. The author argues that a number of traditional cultures have elaborated management systems more consistent with the ecosystem view and current ecological theory.

Gadgil, M.; Berkes, Fikret and Folke, C. 1993. "Indigenous knowledge for biodiversity conservation." *Ambio* 22(2-3): 151-6.

This article asserts that indigenous peoples with a historical continuity of resource-use practices often possess a broad knowledge base of the behavior of complex ecological systems in their own localities. It also points out that indigenous peoples are aware that biological diversity is a crucial factor in generating the ecological services and natural resources on which they depend. Within the article, the author argues that if ecosystems and biodiversity are to be managed sustainably, it is vital that the value of the knowledge-practice-belief complex of indigenous peoples relating to conservation of biodiversity is fully recognized. He suggests that this would be best accomplished by promoting the community-based resource-management systems of indigenous peoples.

Heywood, V.H., exec. ed. and R.T. Watson, chair. 1995. *Global biodiversity assessment for the United Nations Environment Programme*. Cambridge, UK & New York, NY: Cambridge University Press.

The objective of this assessment is to provide an independent scientific analysis of the current issues, theories and views regarding the main global aspects of biodiversity. The work assesses the current state of knowledge of biodiversity, identifies gaps in knowledge and critical scientific issues, and draws attention to those areas where scientific uncertainty has led to conflicting viewpoints. Within the assessment separate chapters address biological aspects of biodiversity, human society and cultural diversity, and strategies for biodiversity conservation and sustainable use.

Joyce, C. 1994. *Earthly goods: Medicine-hunting in the rainforest*. Boston, MA: Little Brown and Co.

This book describes bioprospecting past and present. The present day search for rainforest species of value to the pharmaceutical industry is seen as part of a radical experiment to preserve remaining forests by demonstrating the value afforded by conservation.

Kloppenburg, Jr., Jack and N. Hassanein. 1995. "Where the grass grows again: Knowledge exchange in the sustainable agriculture movement." *Rural Sociology* 60(4): 721-40.

Examines the emergence of intensive rotational grazing as a local expression of the sustainable agriculture movement. Recent contributions to social movement theory are used to describe the cognitive praxis of grazers along technological, cosmological and organizational dimensions. The author argues that contrary to current interpretations, which stress the idiosyncratic character of

local knowledge, grazers overcome the limits of their personal experience and share local knowledge in networks that they have forged expressly for that purpose.

Laird, S. 1994. "Natural products and the commercialization of traditional knowledge." In Thomas C. Greaves, ed. *Intellectual property rights for indigenous peoples: A Sourcebook*. Oklahoma City, OK: Society for Applied Anthropology, pp. 145-62.

This article argues that the past several years have seen a remarkable change with respect to the principle of compensation to host countries of origin for plants and extracts gathered by transnational pharmaceutical companies seeking new drug compounds. The rights and compensation of originating indigenous societies is gaining acceptance when those plants and extracts are found with the assistance of indigenous knowledge, or obtained in commercial quantities from areas occupied by indigenous peoples. The author describes three scenarios in which traditional knowledge is transferred to commercial interests, and the types of benefits and control over this process retained by the communities. She argues that of greatest importance to indigenous peoples is their ability to negotiate on their own behalf, with complete information on the role of their knowledge in commercial product development, and the choice to involve themselves in research or not.

Martin, G.J. 1995. *Ethnobotany: A people and plants conservation manual*. London, UK: Chapman and Hall.

This is a brief manual on ethnoecological methodology. The manual addresses the link between ethnoecology, conservation, and community development.

Milton, Kay. 1993. "Environmentalism and anthropology." In Kay Milton, ed. *Environmentalism: The view from anthropology*. London, UK: Routledge, pp. 1-17.

This introductory article explores the relationship between anthropology and the environment which has emerged as a distinctive social commitment.

Oldfield, Margery L. and Janis B. Alcorn, eds. 1991. *Biodiversity: Culture, conservation and eco-development*. Boulder, CO: Westview Press.

This collection of essays represents a multidisciplinary effort on the part of biologists, anthropologists and policy analysts to provide a useful framework for evaluating efforts to identify and sustain viable traditional resource management strategies that will enable long term conservation of biodiversity. Part I looks at biodiversity and culture, Part II examines genetic resources and culture, Part III considers traditional conservation and the use of biodiversity and Part IV takes up the topic of biodiversity conservation and ecodevelopment. All of the essays stress the point that valuable, locale-specific knowledge is used by diverse, rural peoples who have relied for centuries upon the maintenance of biodiversity.

Prance, G.T., Derek J. Chadwich and Joan Marsh, eds. 1994. *Ethnobotany and the search for new drugs*. Chichester, UK; New York, NY: John Wiley and Sons.

This book contains papers and discussions from a symposium during which studies of traditional medicine around the world were presented. Within the book ways to encourage conservation of natural habitats and cultivation of medicinal plants are described. Intellectual property rights are also discussed, including the application of patent laws and other methods of compensation for local communities.

Redford, Kent H. and A.M. Stearman. 1993. "Forest dwelling native Amazonians and the conservation of biodiversity: interests in common or in collision?" *Conservation Biology* 7(2): 248-55.

Contends that indigenous people and environmentalists define conservation and biodiversity in different ways, with indigenous people focusing more on preservation of general habitat characteristics and exclusion of extensive habitat alteration. The authors argue that in fact the interests of conservation biologists may not be completely compatible with the agenda of indigenous peoples.

Rosler, M. 1993. "Conserving outstanding cultural landscapes." *The World Heritage Newsletter* 2: 14-5.

This article includes the reports on the decision of the World Heritage Committee to adopt cultural landscapes under UNESCO's World Heritage Convention. The Convention agreed on three categories of cultural landscapes.

Soejarto, D.D. and Norman R. Farnsworth. 1989. "Tropical rain forests: Potential source of new drugs?" *Perspectives in Biology and Medicine* 32(2): 245-57.

Discusses tropical rainforests in terms of their: biotic richness, tropical plants yielding clinically useful drugs, and drugs that remain to be developed. Next, it outlines the legal complexities and economic costs associated with plant-derived drug development. The authors assert that the entire tropical rainforest biome may disappear shortly and with it a large portion of the species, which live within it. They argue that what is most important from a drug discovery and development perspective is the urgency for major efforts in the exploration of the rain forest biome for the collection of plants to be submitted to massive screening programs, and the further study and documentation of the ethnomedical uses of rain forest plants.

VI. Web Sites on Intellectual Property Rights and Related Issues

<http://users.ox.ac.uk/~wgtrr/decin.htm>

This site contains the texts of: The FAO Draft International Code of Conduct for Plant Germplasm Collecting and Transfer; The Andean Pact Common System on Access to Genetic Resources; Community Intellectual Rights Act; Draft Declaration of Indigenous Peoples; and the Draft Code of Ethics and Standards of Practice of Ethnobiologists.

<http://users.ox.ac.uk/~wgtrr/trr.htm>

This site provides all the relevant legally and nonlegally binding conventions and agreements that have been made regarding Trade Resource Rights. Including: Convention on Biological Diversity; Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property; GATT and WIPO.

www.rafi.ca/misc/outofcontrol.html

This site contains important and controversial patents of various bioresources associated with traditional medicine and agriculture.

VII. Organizations

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