A Cartographic History of Indian-White Government Relations during the Past 400 Years

Daniel G. Cole and Imre Sutton

Introduction

Maps serve as geographic, environmental, historic, ethnographic, political, and legal tools. We will focus upon the various purposes, goals, and objectives that maps have played and continue to play in Indian affairs. Maps have multiple purposes, providing degrees of accuracy in knowing places, finding your way in landscapes, security in mobility and the like. Such purposes are exposed on maps as spatial records of villages and possibly sacred spaces; as migratory, hunting, and trading networks; and as overlapping and adjacent cultural territories. Maps create a record, as in the instance of identifying boundaries of territories or even as real estate. Maps are also employed to report and record elements of nature and thus serve to enable research.

We focus this discussion on the role of mapping Indian country—the role, first of all, of government. Even when not specifically stated, legal issues inform this review. Thus we can speak of "legal cartography," that is, mapping with a

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legal purpose, when laws such as treaties and statutes specify and enable the goals of mapping. We will explore the three roles of government mapping, academic mapping, and tribal mapping, and correlate them with some findings. Keep in mind that interchanges between map data and cartographic methodology have occurred numerous times. As we will see, government and academia have shared cartographic data, and both have learned from the tribes. In turn, the tribes have also learned, not always to their well-being, from the others.

While mapping Indian lands and cultures occupies the greater portion of cartographic history, other issues have been mapped also: resource use and exploitation, criminal justice, border security, census, education, health services, gaming and casinos, and so on. All of these issues are involved in the legal affairs of Indians in the United States and so will be discussed briefly to analyze the ongoing spatial activities across the dynamic landscape of Native America.

Role of Government

The cartography of Indian land and territory reveals multiple purposes and objectives of mapping. From early contact and official policy, mapping has been tied to treaty, statute, and executive order measures to delimit Native territory, leading to land transfers and the creation of reservations. One may assume correctly that some of that mapping was intended to diminish tribal land claims to favor non-Indian access and occupation of such lands. And one is not disingenuous to assert that a good deal of such mapping was committed to render tribal lands as less than they were perceived to be by the tribes. The desire to displace and dispossess tribes is recorded on countless maps.

Not all mapping had the intent to dispossess the tribes, rather seeking to map and record more accurately how tribes described their territories. But even these maps later would be reduced by efforts to allot tribal members and thus opened them up to be read as an indicator of so-called surplus lands. Such maps may be quite accurate in technically defining the spatial boundaries of the tribes, but what was taken from the tribes then becomes a matter of record. Similarly, reservation maps have become increasingly accurate technical products as have actions of displacement, for example, the inundation of large portions of reservations caused by development of dams and related water works. Such maps indeed have had the purpose of defining the areas of inundation and thus set aside from tribal utilization.

Colonial Period (Early 1600s–1775)

Since the early 1600s, land transfers from Indians to whites were sometimes piecemeal and sporadic, while at other times organized and intense. During the colonial periods of settlement, lands transferred included those formally ceded by treaty or purchase, those seized privately or in the name of the crown, and those that after a time became de facto seizures. This paper examines Indian-colonial land exchanges by nation: Dutch, Swedish, French, Spanish, and English. This ordering merely starts with the smaller colonial powers and ends with the larger colonial powers (in terms of the area covered by the forty-eight contiguous states); England is dealt with last because of its direct link to the United States.

Prior to examining the various colonial powers' land-based relationships to Indians, one should understand why the words *cession* or *cede* will not often be used here. To refer to Indian land cessions without qualifications such as those noted above is only nominally correct. This shortcoming can be seen in studies such as that by Hilliard,[1] who referred to all land transfers as cessions.[1] While it is true many de facto cessions occurred, difficulty arises in finding lands freely ceded or sold at times when the Indians were acutely aware of the areal extent involved. Many land transfers were made under duress by defeated Indians at the close of wars, or simply to open up lands for white settlement by segregating Indians in "Indian territory" or on isolated reservations. And some treaties ceding Indian land were not signed by legitimate tribal representatives.

The various European powers felt that the right to land depended on discovery, without consideration for the Native population inhabiting and possessing the land.[2] Over the years, this policy evolved into the right of eminent domain in order to accommodate settlers as well as colonial (and later federal) expansionist policies. Nonetheless, even though kings substantiated free and complete title to land grants, patents, and charters, grantees had the option of choosing how to deal with Indians—to simply move in or, to keep the peace, purchase land or treat with them to get land.[3]

Royal claims to the continent required maps, many of which were created based upon secondhand knowledge from the field, previously published maps, estimated locations, and hearsay, which resulted in questionable tribal placement as seen in figures 1 and 1a: note the Illinois tribe in the upper peninsula of Michigan, and the mountain range curving up the middle of the lower peninsula. As time went on, more details appeared, with better placement of tribes and their villages (figs. 2 and 2a). As more knowledge of the continent

Figure 1. (close-up) and **Fig. 1a** (full map). *Map by Nicolas Sanson*. Carte nouvelle de l'Amérique Angloise, contenant la Virginie, Mary-Land, Caroline, Pensylvania, Nouvelle Iorck, N:Iarsey, N. France, et les terres nouvellement découerte dressé sur les relations les plus nouvelles. Par le Sieur S. *Amsterdam: Chez P. Mortier. LC Maps of North America, 1700, http://hdl.loc.gov/loc.gmd/g3300.np000005*.

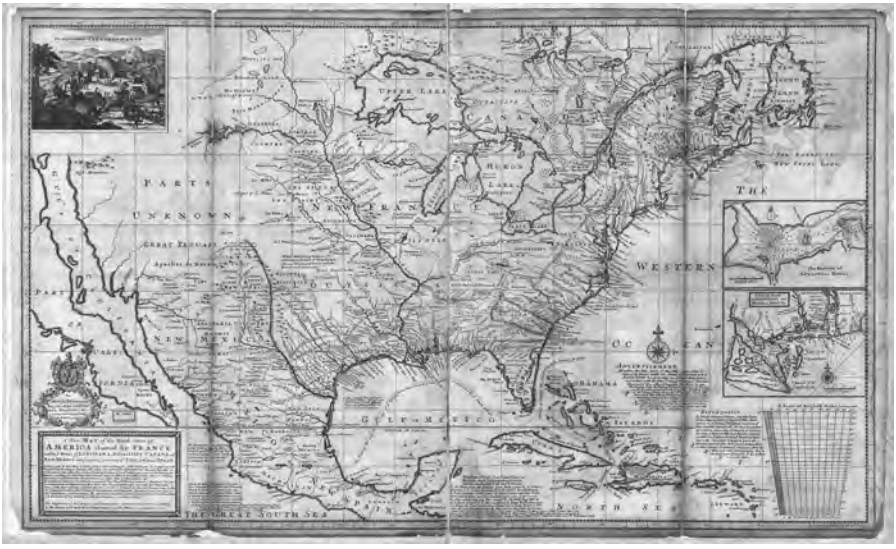
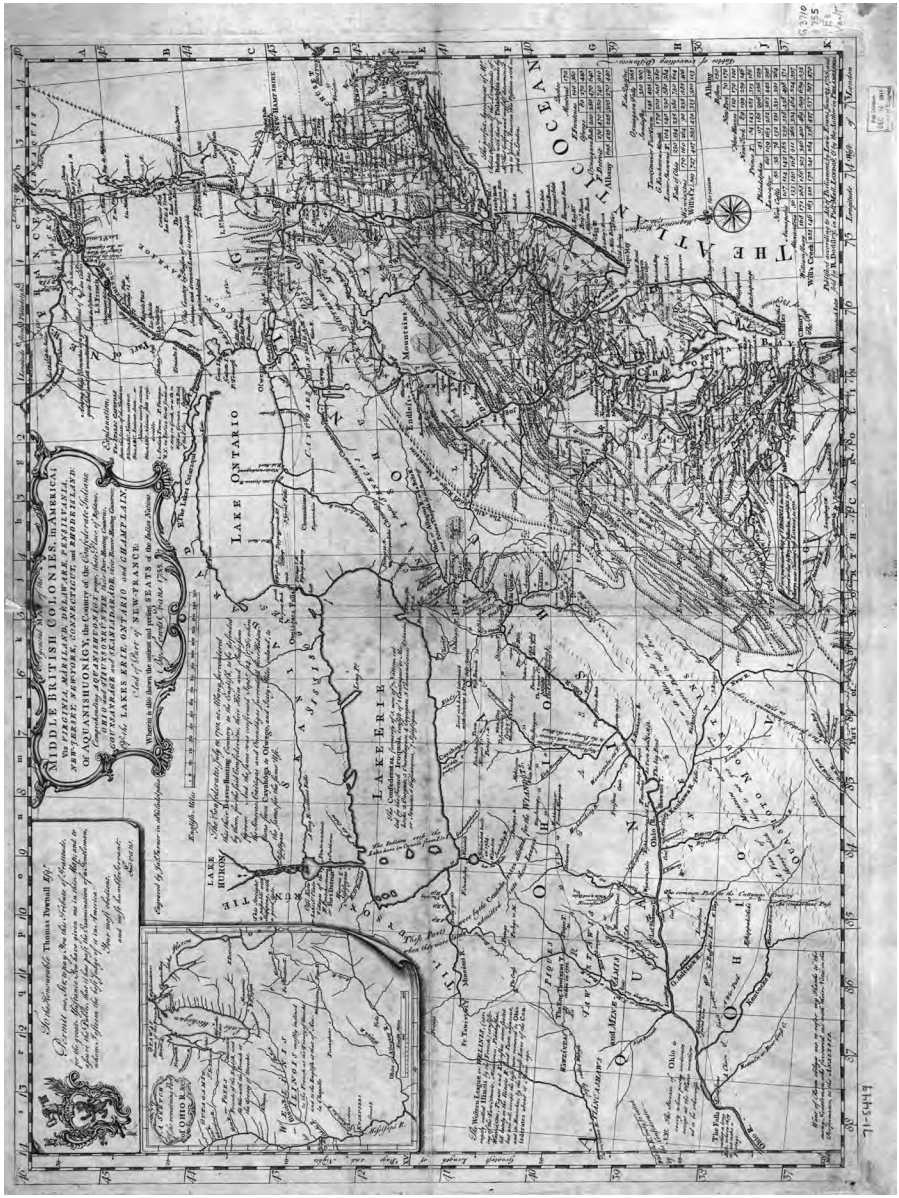


Figure 2. (close-up) and **Fig. 2a** (full map). *Map by Herman Moll*. A new map of the north parts of America claimed by France under ye names of Louisiana, Mississipi, Canada, and New France with ye adjoining territories of England and Spain : to Thomas Bromsall, esq., this map of Louisiana, Mississipi & c. is most humbly dedicated, H. Moll, geographer / laid down according to the newest and most exact observations by H. Moll, geographer, 1720. *London: H. Moll. LC Maps of North America, http://hdl.loc.gov/loc.gmd/g3300.ct000677.*

was gathered, more details could fill in the cultural and physical gaps across the landscape. A number of southeastern tribes and villages are well placed on this map: note the Cherokee (Charakey), Appalachee (Appalache), and Alabama (Halabama). Given the competing interests of the colonial powers, identifying and mapping the political, economic, and military relations between Indians and whites became paramount (figs. 3 and 3a). Detailed descriptions of Indian-white relations cover this map, indicating which tribes are affiliated with which colonial power, who is friendly for trade or passage, and so forth. Meanwhile, establishing and mapping borders enabled the European powers to make audacious claims of territorial control without any Native American input (fig. 4). Defined colonial borders show up in this map, irrespective of any tribe's existing territory. Even though "sea-to-shining-sea" boundaries were given to Georgia, North and South Carolina, and Virginia in this map, at least Indian occupancy was recognized.

Figure 3. (close-up) and **Fig. 3a** (full map). *Map by Lewis Evans.* A general map of the middle British colonies, in America; viz. Virginia, Mariland, Delaware, Pensilvania, New-Jersey, New-York, Connecticut, and Rhode Island: Of Aquanishuonîgy, the country of the Confederate Indians; comprehending Aquanishuonîgy proper, their place of residence, Ohio and Tïiuxsoxrúntie, their deer-hunting countries, Couxsaxráge and Skaniadarâde, their beaver-hunting countries; of the Lakes Erie, Ontário, and Champlain, and part of New-France: Wherein is also shewn the antient and present seats of the Indian nations. Engraved by Jas. Turner. *Philadelphia, 1755. LC Maps of North America, 1750–1789, 709, http://hdl.loc.gov/loc.gmd/g3710.ar070900.*



The Dutch slowly settled New Netherland, the eastern New York area, starting with the purchase of Manhattan Island in 1624 (fig. 5). Beginning in 1629, large tracts of territory were granted if "patroons" purchased the lands from the Native inhabitants and recruited new settlers. Soon grants were established on the Hudson, Connecticut, and Delaware rivers. But this policy ended in 1631 owing to the failure of all patroonships with the exception of

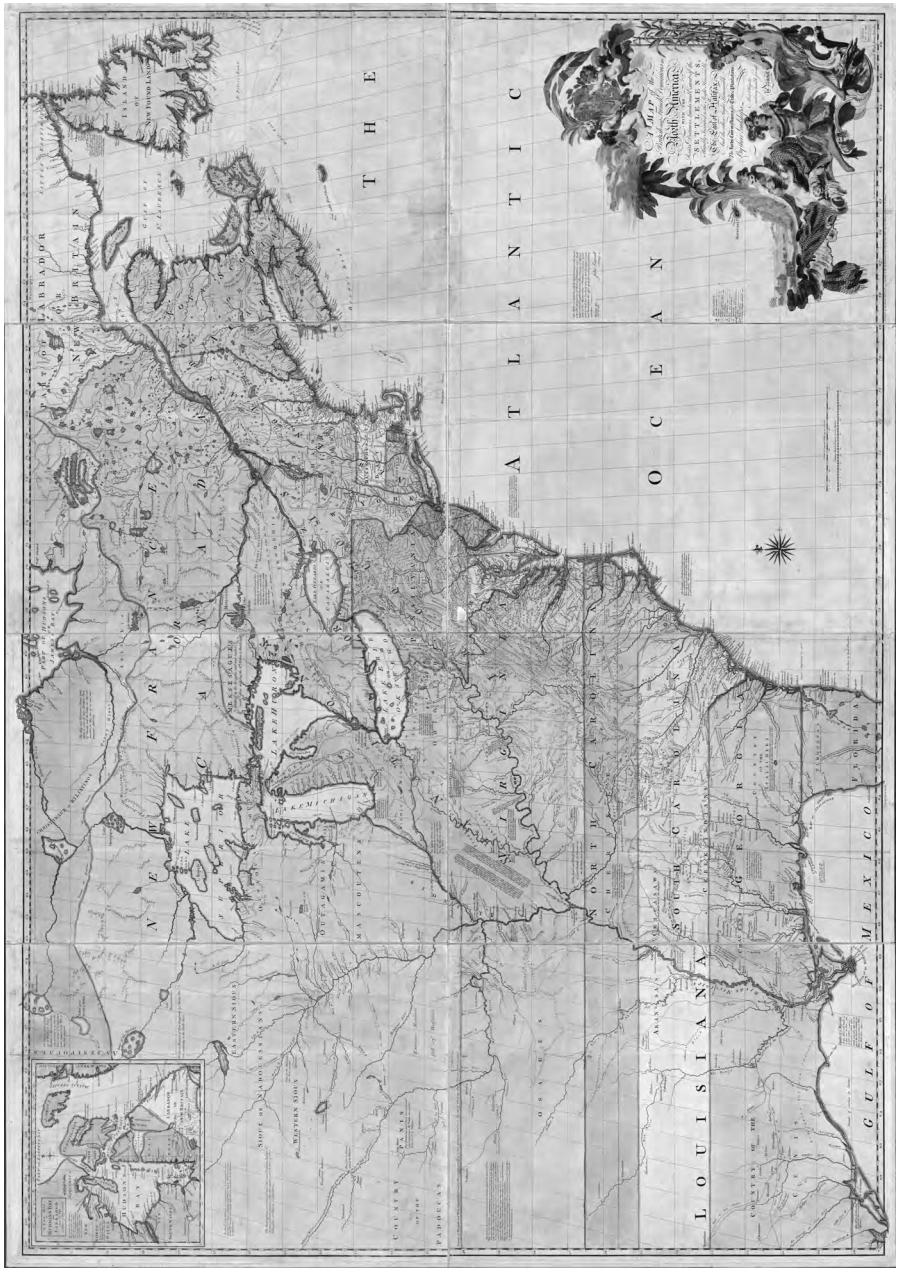


Figure 4. *Map by John Mitchell.* A map of the British and French dominions in North America, with the roads, distances, limits, and extent of the settlements, humbly inscribed to the Right Honourable the Earl of Halifax, and the other Right Honourable the Lords Commissioners for Trade & Plantations, by their Lordships most obliged and very humble servant, Jno. Mitchell. Tho: Kitchin, sculp. *London; Sold by And: Millar, 1755. LC Maps of North America, 1750–1789, 38, http://hdl.loc.gov/loc.gmd/g3300.np000009*

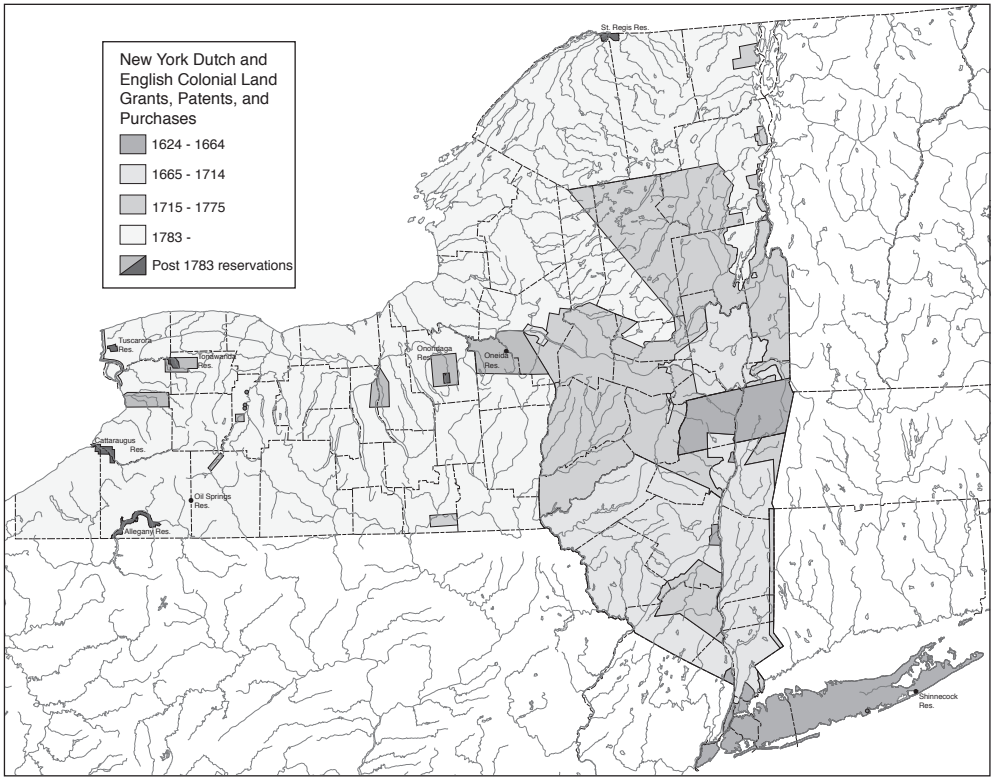


Figure 5. *Map by Daniel Cole copied from map in T. Oberlander,* Land Patents, Grants, Purchases in New York, 1624–1800, *in* Richards Atlas of New York State, *2nd ed., ed. Robert J. Rayback (Phoenix, NY: Frank E. Richards, 1959).*

Rensselaerwyck. Nevertheless, the Dutch West India Company maintained relatively good relations with the Indians due to its formal recognition of Indian title when purchasing Indian lands.[4]

The Swedes began, in 1638, by purchasing Indian land from Bomten's Point to the Schuylkill River along the west bank of the Delaware. On figure 6, note the areas of Swedish purchase from Indians around the Delaware River and Bay: these areas did not have eastern or western limits. And note the changing East-West Jersey lines here, as well as the Navesink Patent, comprising land obtained without indigenous cooperation. Further purchases in 1640 extended New Sweden from Cape Henlopen to Sankikans, the falls near present-day Trenton, New Jersey. To secure control of Delaware Bay, the Swedes bought land along the eastern bank of the Delaware from Cape May to Raccoon Creek in 1641. This holding was extended slightly in 1649 to Mantua Creek. Like many other Indian land deals, these purchases had no western or eastern limits.[5] The West

India Company took control of New Sweden and all present-day New Jersey in 1655. New Jersey's first permanently settled white village, Bergen (1660), was not in former Swedish territory; instead, the town was in Pavonia, a purchase of Indian land between the Hackensack and Hudson rivers.[6]

The territories of New France and Louisiana, within the United States, contained no French land claims outside the area around New Orleans. Figure 7 is a map made by the British military after the Royal Proclamation Line of 1763 was established. Note that colonial control to the Mississippi River from Virginia southward is displayed, which places doubt regarding the longevity of "Lands Reserved for the Indians." Regardless, the French recognized absolute Indian land title, in contrast to English views, and stated such in 1763 during negotiations to end the French and Indian war, partly resulting in the Royal Proclamation Line.

> England desired full sovereignty over the territory east of the Mississippi River, but France and Spain held that they could not convey such absolute title because they did not have it. French negotiators insisted that the Mississippi valley belonged to "France or the Indian allies of France." Spain echoed that France could not convey the interest of a third party (Indian nations). France proposed that to settle the question, a neutral zone should be established west of the Appalachians, extending to the Mississippi, where no European power could claim ultimate title. England responded by saying that the King had dominion over all of the Indian tribes within the boundaries of his claim, and that the Indian nations were subject to the power of the British monarch. On this point, French and Spanish negotiators took great pleasure in ridiculing England, by stating that no Englishman would dare to assert such an idea in the presence of an Iroquois. As a compromise, the 1763 treaty finally read that France was conveying title to everything she "possessed or ought to possess" east of the Mississippi, so that France was ceding to England only the territory she owned, and not that territory owned by the Indian nations; and within half a year of the signing of the treaty, King George III proclaimed that all of the land the French had proposed should be a neutral zone and was to be held by the Indians forever.[7]

Spain viewed land title as something gained by discovery or conquest. Regardless of the attitude expressed in the 1763 negotiations, Spain considered unoccupied territory as wasteland, so no Indian title or claim in such areas was recognized. And the Spanish allotted to the Indians only "so much as they actually occupied, or that was necessary for their use."[8] If occupied lands were taken, Indians were compensated by exchanging allegedly equal lands. In northern New Spain, much good data on Southwest tribes and villages can be ascertained on a map made in 1771 by Nicolas de Lapora (fig. 8) despite clear distortion. Note Comanche (Cumanches) territory and villages of four bands of Apaches, as well as the Pueblos.

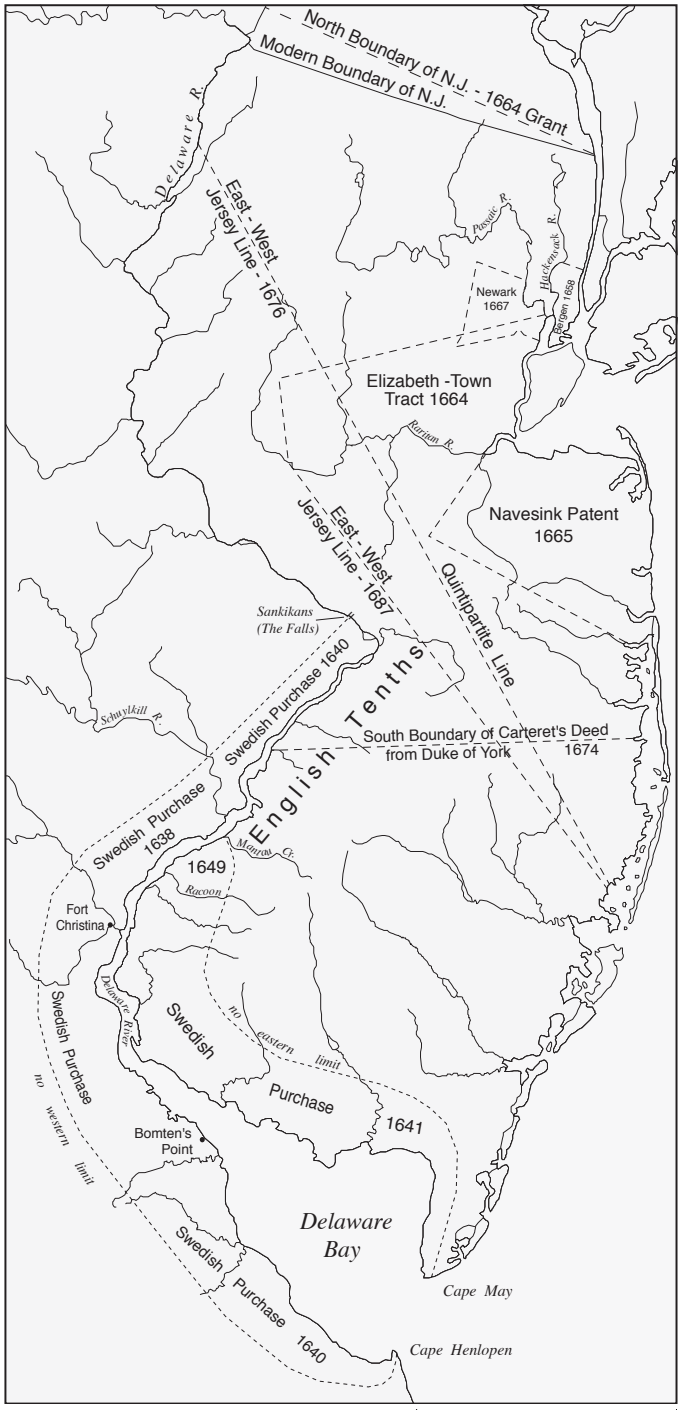


Figure 6. *Map by Daniel Cole copied from map in Snyder, John P.* The Story of New Jersey's Civil Boundaries, 1606–1968. Bulletin 67 *(Trenton, NJ: Bureau of Geology and Topography, 1969).*

Figure 7. *Cartographer unknown.* Cantonment of the forces in North America 11th. Octr. 1765. *Location and Publisher unknown. LC Maps of North America, 1750–1789, 114, http://hdl.loc.gov/loc.gmd/g3301r.ar011400.*

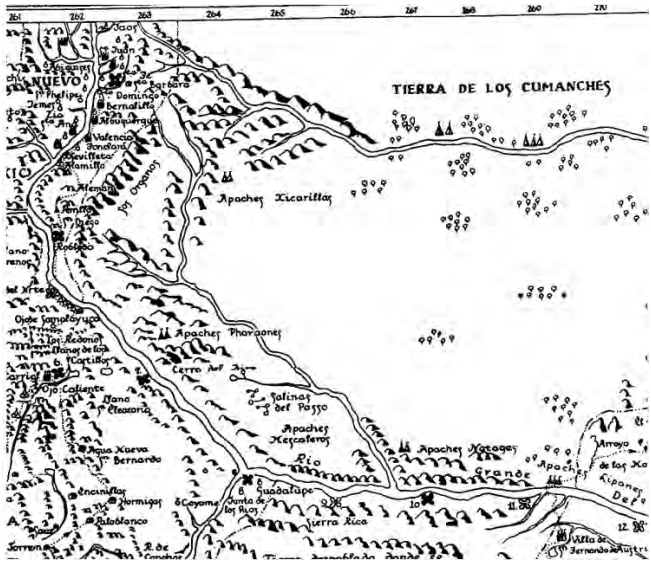


Figure 8. (close-up) and **Fig. 8a** (full map). *Map by Nicolas de Lapora.* Mapa de la Frontera del Vircinata de Nueva Espana…Julio de 1771. *Redrafted by Ynez Durnford Haase in 1952. Scan by Daniel Cole.*

TIERRA DE LOS COMANCHES
TEXAS
PROVINCIA
COLONIA
EL NUEVO
REINO DE
SANTANDER
NUEVA
GALICIA
PROVINCIA
DE
TAMPICO
LA PAPAGUERIA
PROVINCIA

In California, four square leagues of land (one square league = 4428.402 acres) were given to each pueblo, presidio, and mission under Spanish control. Figure 9 portrays the Spanish concessions and Mexican land grants in California. Under Mexican administration, a more liberal land grant policy was in effect; from 1822 to 1846, 553 grants of up to eleven square leagues each

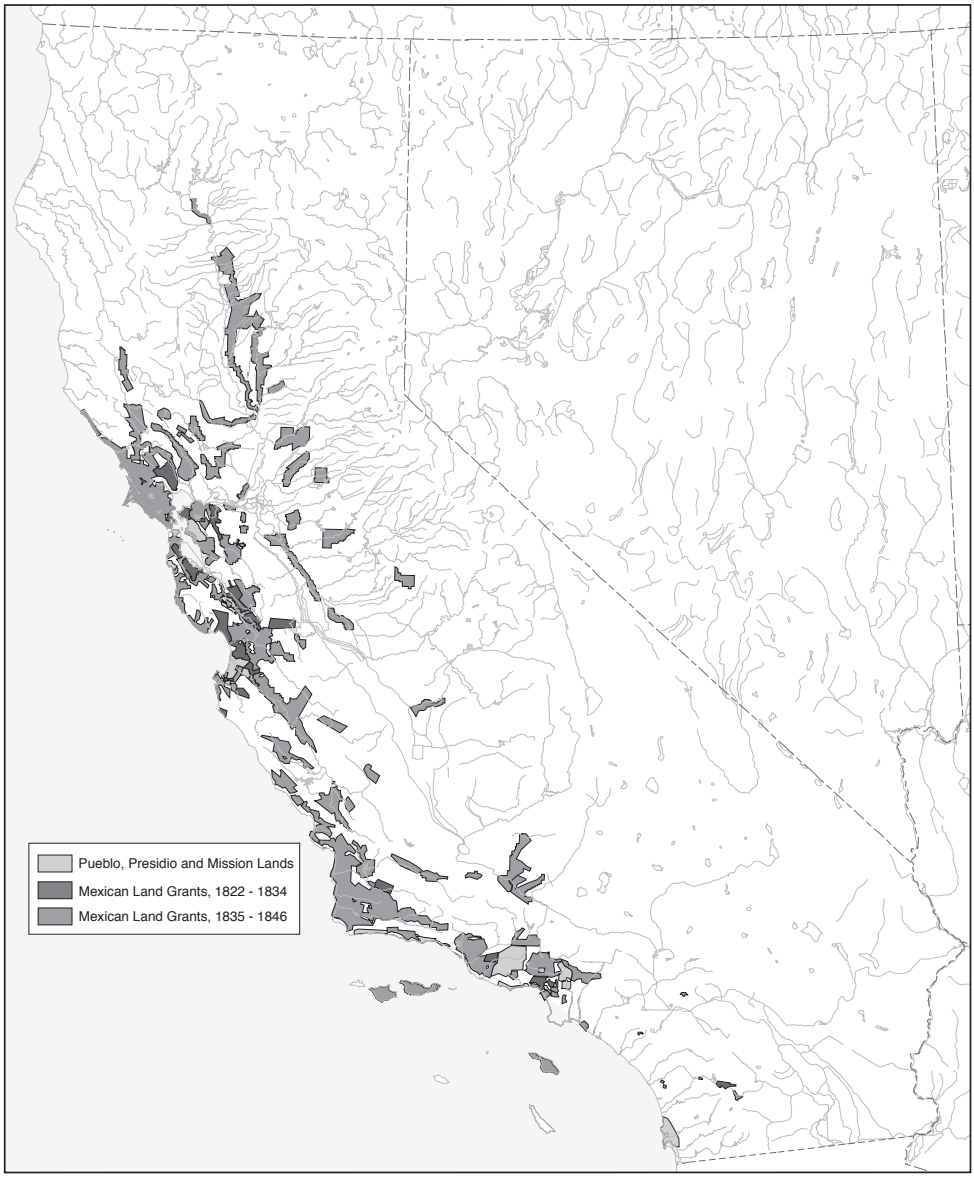


Figure 9. *Map by Daniel Cole.* Spanish and Mexican land grants in California. *Derived from Beck and Haase 1974.*

were delivered to heads of families, individuals, and empresarios.[9]

Except for the four square league grants to Tucson and Tubac, the Spanish made few land grants in Arizona. The Mexicans also limited grants to this size, primarily along the present international boundary in the Santa Cruz and San Pedro valleys.[10]

Figure 10 illustrates Spanish and Mexican land grants in New Mexico

Figure 10. *Map by Daniel Cole.* Spanish and Mexican land grants in New Mexico and southern Colorado. *Derived from Briggs and van Ness 1987, Westphall 1983, and Williams 1986.*

and southern Colorado. Colonial authorities awarded 106 land grants in New Mexico before 1821. The Mexican government continued this policy until "all of the best lands along the Rio Grande and its tributaries, having irrigation possibilities had been granted."[11] But these grants were unsurveyed and often resulted in confusing and overlapping boundaries. To solidify their title claims after Texas gained its independence in 1836, the Mexicans made seven large land grants up to the Arkansas River in southern Colorado.[12] Little or no mention, however, is made of Indian titles to any lands outside of the pueblos.

In Texas, liberal land grants to soldiers, public officials, and others started in 1731. Prior to Texas becoming a republic, and later a state, it was mapped relatively accurately by David Burr (fig. 11), including adjacent areas of the United States and Mexico. This map's primary focus was to illustrate the expatriate American empresario land grants across the territory. The map also shows the location of the short-lived Shawnee Reservation in Texas (center) along the Red River. "By the close of the Spanish period, most of the desirable land between the Neuces and the Rio Grande had been granted, either as porciones [narrow strips of land along the rivers] or as larger grants for grazing purposes."[13] Eastern Texas had equally large grants around Nacogdoches. During the Mexican period, more liberal land grants were allocated in the 1820s and early 1830s to encourage white settlement. The first and only short-lived Indian grant was set aside in 1824 for the Shawnee (fig. 11a) in northeastern Texas: one square mile "to each of the 270 warriors already in Texas, and to their friends and allies who might move in at a later date."[14] In 1835, boundary claims for the Cherokee were tentatively recognized, but the treaty to establish a land base for them, in the eastern portions of Burnet's and Felisola's grants, was never ratified.[15]

Spain entered into a number of treaties with Indians in Louisiana and throughout the Southeast during the late 1700s primarily to create friendly relations and defensive alliances so that a buffer zone existed between the Spaniards and the English colonies, and later the United States.[16] Unlike France, Spain had voluminous documents outlining land grants in Louisiana. However, no known maps or Indian boundaries existed, thus enabling the French to ignore these documents when Louisiana passed back into French colonial dominion.[17]

Florida passed through colonial hands from Spain to England (1763) and back to Spain (1783). Numerous small grants (932) were given as payment for service to the crown or sold to those seeking to establish farms in Florida prior to the nineteenth century.[18] Figure 12 illustrates Spanish land grants in Florida. Indian lands in northwestern Florida were purchased by or ceded to John Forbes from 1808 to 1818. These lands and the rest of Florida were covered by three grants to the Duke of Alalgon, the Count of Punon Rostro,

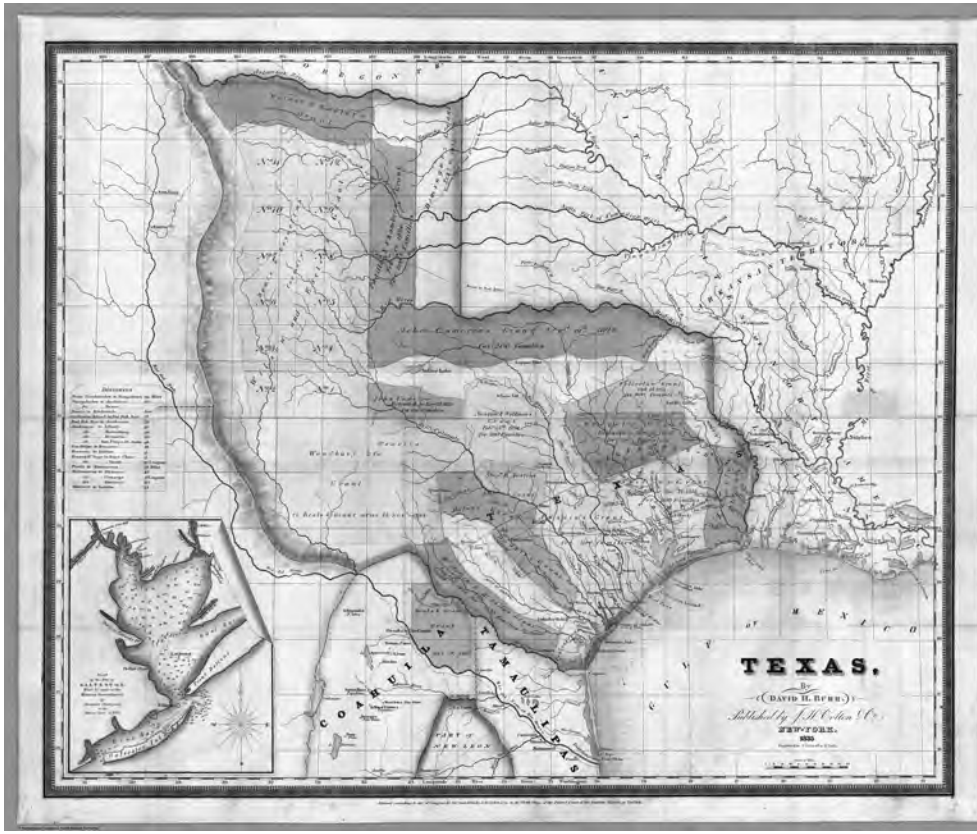


Figure 11. (full map) and **Fig 11a** (close-up). *Map by David H. Burr.* Texas. *New York: J. H. Colton & Co., 1835. David Rumsey Map Collection, available online.*

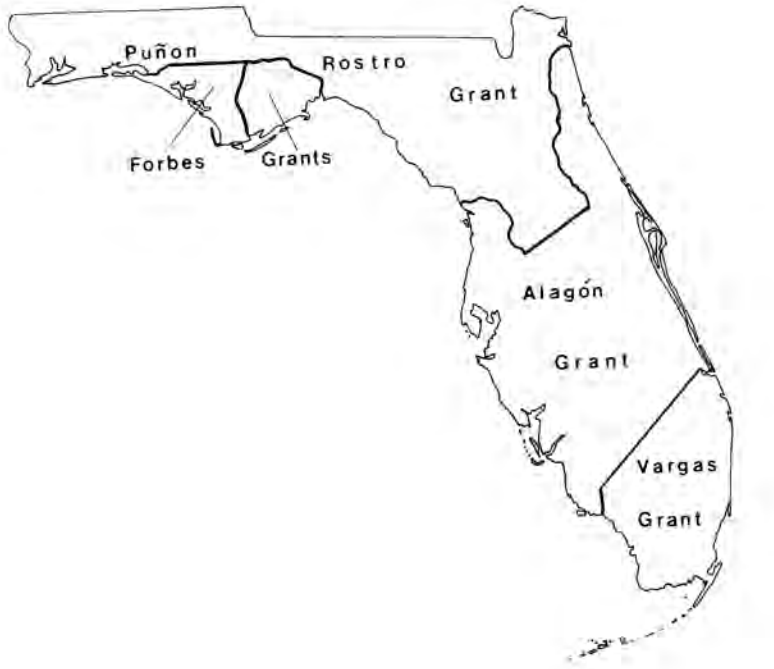


Figure 12. *Map by Daniel Cole.* Spanish land grants in Florida. *Derived from Crider 1979, and Williams 1837.*

and Don Pedro de Vargas, so that the Spanish king could secure all "vacant" lands against American encroachment.[19]

Within the English colonies, grants were not to include any lands possessed or inhabited by any other Christian prince or state. This practice excluded Indians.[20] Legislatively, in the southern (and likely northern) colonies, Indians were treated as aliens.[21] For instance, Lord Baltimore's and William Penn's charters made little or no mention of Indians—only savages and barbarians as enemies to be vanquished and pursued beyond the provincial borders, if necessary. Regardless of the concern expressed in statutes toward Indian land rights, this attitude prejudiced any land dealings or exchanges with the Indians. Boundary lines delimiting Indian territory failed to halt the expansion of colonial and later United States settlement.

The colonies of New England started at Plymouth where the local Indians gave the Pilgrims land for their village, but the agreement also gave the whites and their descendants all the lands adjacent to the town.[22] That sort of agreement could be very liberally interpreted. Similar to the Spaniards, the Puritans considered "unused" land (any land not subdued and cultivated) as "wasteland." Given that premise, the Puritans felt obligated not to take any land that the

Indians had under cultivation. On the other hand, the Puritans interpreted their charter to give them absolute sovereignty over Massachusetts lands, thus making any Indians' lands legally free for the taking. Even so, many Indian land purchases occurred in New England.[23]

Throughout eastern coastal Massachusetts, land purchases were typically by and for the townships. These purchases took place intermittently throughout the 1600s, eventually enabling whites to crowd Indians into small areas. Not all lands were gained by treaty or purchase; Thomas notes that the lands of Boston and Salem were "otherwise gained," that is, simply seized.[24] Most lands throughout the interior of Massachusetts fit this category.

Elsewhere in southern New England, land purchases in the 1600s, whether by Roger Williams in Rhode Island or by the settlers of Connecticut, were widespread and usually honorable. Title to the settlements in most cases was purchased from the Pequot or Mohegan tribes. But land grants in both colonies were later issued to substantiate white land title with neighboring colonial administrations. Land acquisition became nearly complete with the Treaty of Hartford in 1638, thereby extinguishing Pequot political power and land base. Later, Connecticut assigned small reservations to the Pequot to provide them with controllable living space.[25]

Official English control of eastern New York began with the Duke of York's charter in 1664. By 1775, nearly all of eastern New York was divided into land patents and purchases (fig. 5). Some overlapped previous Dutch grants, and a number of purchases and patents were made fraudulently or with little regard for the Native inhabitants, who vigorously protested but to no avail.[26]

All of present New Jersey was also chartered to the Duke of York, who immediately granted that area to two court favorites in 1664. At the same time, the Elizabethtown tract was purchased from Indians (fig. 6).[27] Other lands were granted without Indian consideration (e.g., Navesink Patent, 1665) or were purchased (e.g., Newark Tract, 1667). In 1676, New Jersey was divided into East and West Jersey; in 1687, the line was modified and surveyed. West Jersey was divided into irregular tenths along the Delaware River, comprising about 100 square miles each. Settlers then purchased these sectioned lands from the Indians. Purchases continued into the mid-1700s, when, due to fear caused by Indian/white troubles in Pennsylvania, commissioners were appointed to settle Indian complaints. The Indians identified which tracts had been purchased and which had been improperly obtained, whereby in 1758, the commissioners authorized the purchase of all remaining unpurchased and improperly obtained lands in New Jersey, thus fully extinguishing all Indian title.[28]

In Pennsylvania, William Penn obtained the first English deed for lands during 1682. While the Quakers were almost uniformly honest in their dealings

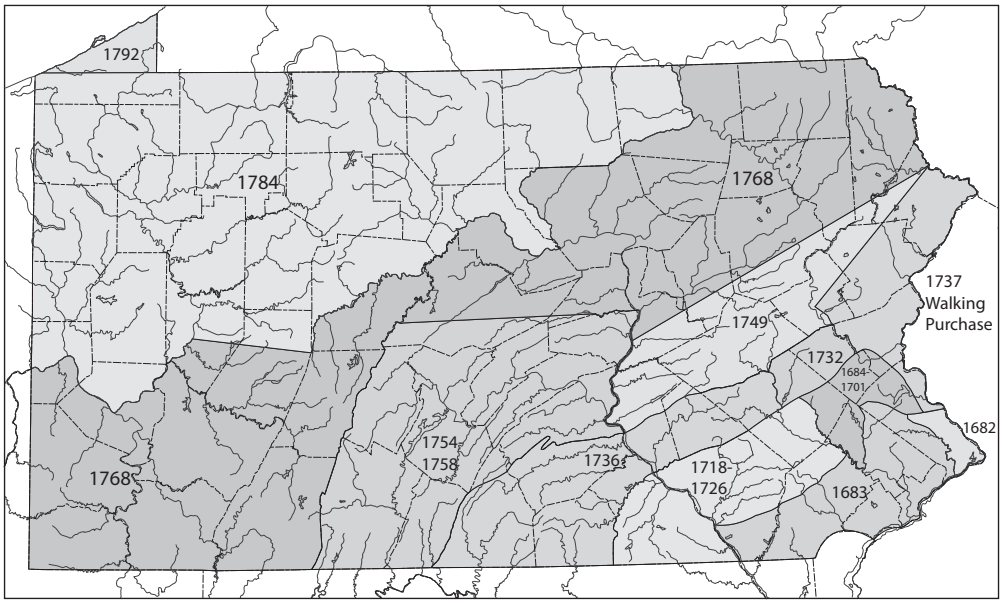


Figure 13. *Map by Daniel Cole.* Indian-White land transfers in Pennsylvania. *Derived from Pennsylvania Bureau of Land Records 1985.*

with the Indians, there were some notable exceptions. First, the boundaries of early grants, purchases, treaties, and deeds to lands from 1682 to 1701 (fig. 13) were often vague.[29] Second, William Penn's sons were the perpetrators of the notorious Walking Purchase of 1737, in which a large portion of eastern Pennsylvania was expropriated through trickery. The Indians realized that they were swindled, but the net result was that the land was permanently in white hands.[30] Subsequently, all the land in Pennsylvania out to the Indian Boundary Line of 1768 had either been purchased outright or gained through treaty.[31]

Colonial Maryland's first land purchase may have been prior to Lord Baltimore's charter: a fur trader named William Clayborne claimed to have purchased Kent and Palmer's islands.[32] Official land transfers, however, began in 1638 with Baltimore's brother, Leonard Calvert, purchasing an Indian town (Yaocomaco) to establish the white town of St. Mary's. Again, as in the other colonies, the St. Mary's purchase and some of those that followed in Maryland were purposely vague, with no indication of the extent or limit to the territory in the deed.[33] From that base, other lands in present eastern Maryland and Delaware were purchased or treated up to 1799. In the process, the Marylanders set aside two small reservations for the Nanticoke and Choptank tribes. But no lands in Maryland west of the Monacacy River were ever purchased or treated.[34]

Figure 14. *Map by John Smith.* Virginia / discovered and discribed by Captayn John Smith, 1606, graven by William Hole. *London, 1624. LC Maps of North America, http://hdl.loc.gov/loc.gmd/g3880.ct000377.*

After the Virginia colonial land charters were given, from 1606 to 1612 (fig. 14), large indiscriminate land grants were made without any consideration for the Indians. Even though treaties in 1636 and 1646 covered these encroachments, apparently the matter was not settled in the eyes of the disgruntled Powhatan confederacy.[35] Note that John Smith indicated with crosses the limits of areas that he had visited. Anything beyond was secondhand knowledge gained from indigenous sources. White incursion continued into the next century because "what Virginia's colonists wanted from their Indian neighbors was cleared land. It was the Indian farmer, not the Indian hunter, who stood in the way."[36] And, as in the other colonies, any definitive boundary lines set by treaties, such as those with the Six Nations in 1722 and 1743, limited only the Native population but were "not sufficient to arrest the westward progress of English settlement."[37]

North Carolina had on record four treaties (1699, Bear River Indians; 1715, Coree; 1727, Mattamuskeet; and 1754, Catawba) in which land transfers were involved.[38] Beyond these actions, the colony had little official policy

toward Indian lands until the Royal Proclamation Line was drawn in 1763. Until that time, individual colonists purchased lands from the Indians or simply moved in without consent, especially after the defeat of the Tuscarora in 1711.[39] After 1763, land surveys and grants were forbidden west of the Appalachians, and any lands east not previously ceded or purchased by the crown were reserved to the Indians.[40] Nevertheless, that proclamation line would be altered by surveys during the rest of the colonial period.

South Carolina formally treated and purchased coastal lands starting in the late 1600s. These actions continued up to and including the revolutionary period when the colony's final treaties were conducted with the Cherokee in 1777 (fig. 15). This map illustrates the Cherokee cession to South Carolina; note that the area ceded is indicated between the east and west boundary lines. Nevertheless, a large central portion of the colony was never formally treated or purchased.[41]

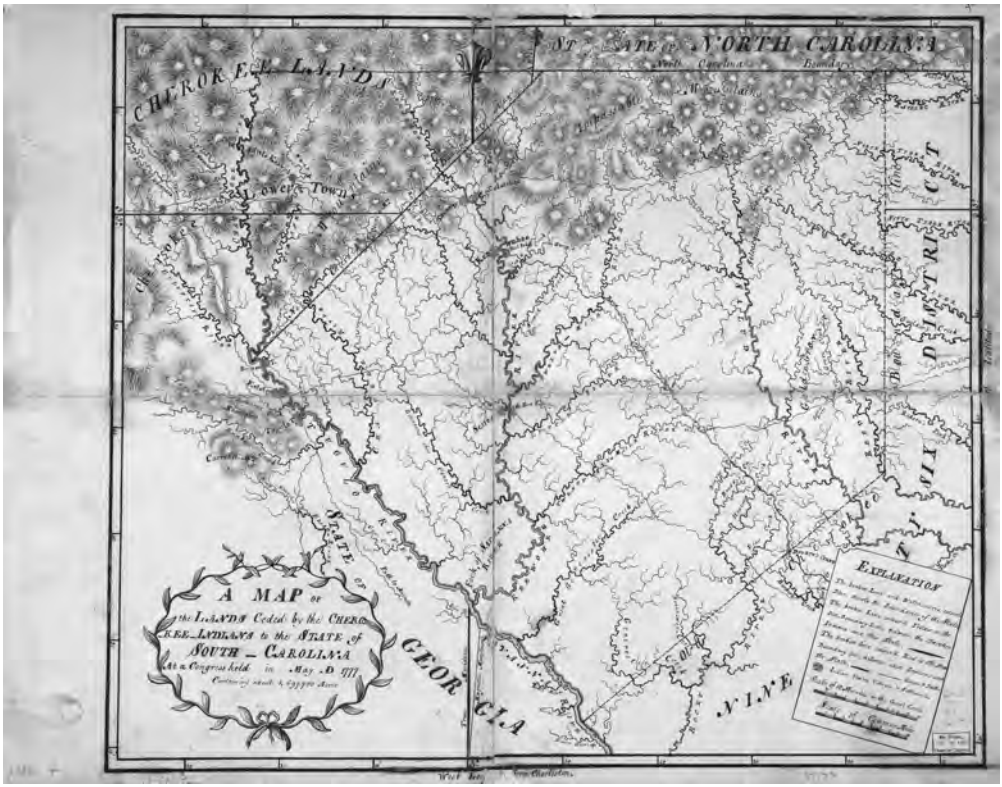


Figure 15. *Cartographer unknown*. A Map of the Lands Ceded by the Cherokee Indians to the State of South Carolina at a Congress held in May AD 1777 Containing about 1,697,700 acres. *Location and Publisher unknown. LC Maps of North America, 1750–1789, http://hdl.loc.gov/loc.gmd/g3910.ar152200.*

The establishment of the colony of Georgia in 1732 presented a future problem for the Cherokee who, in 1721, had treated with South Carolina establishing the Savannah River as an Indian-white boundary line.[42] But the Georgians' initial and primary concern was with the Creek, conducting treaties with them in 1733, 1739, and 1757–1758 for lands along the northern half of the Georgia coast.[43] Other lands in eastern Georgia were automatically acquired in 1763 excepting some Creek and Cherokee lands acquired in 1772 and 1773, as partially depicted in figure 16, which shows lands ceded by the Cherokee to Georgia in 1772 in payment of the tribe's debts.[44]

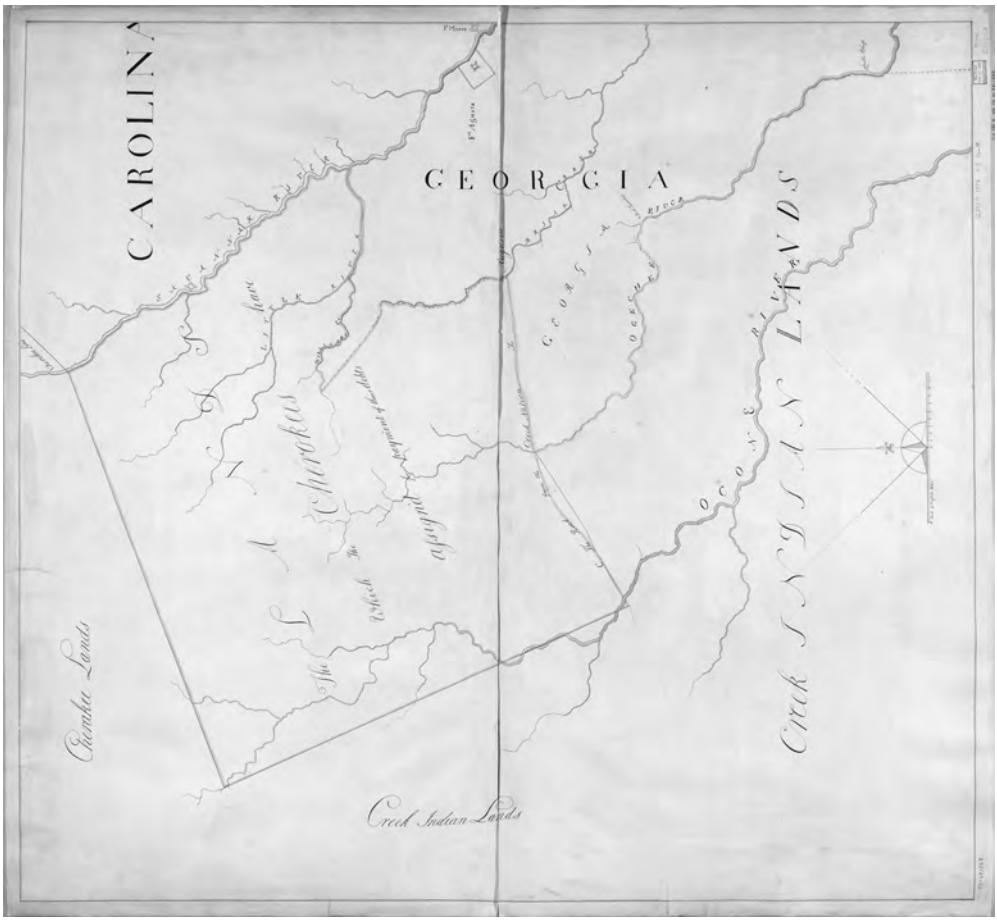


Figure 16. *Cartographer unknown.* Map showing Indian land &c. 1772. *LC Maps of North America, 1750–1789, http://hdl.loc.gov/loc.gmd/g3920.ar303700.*

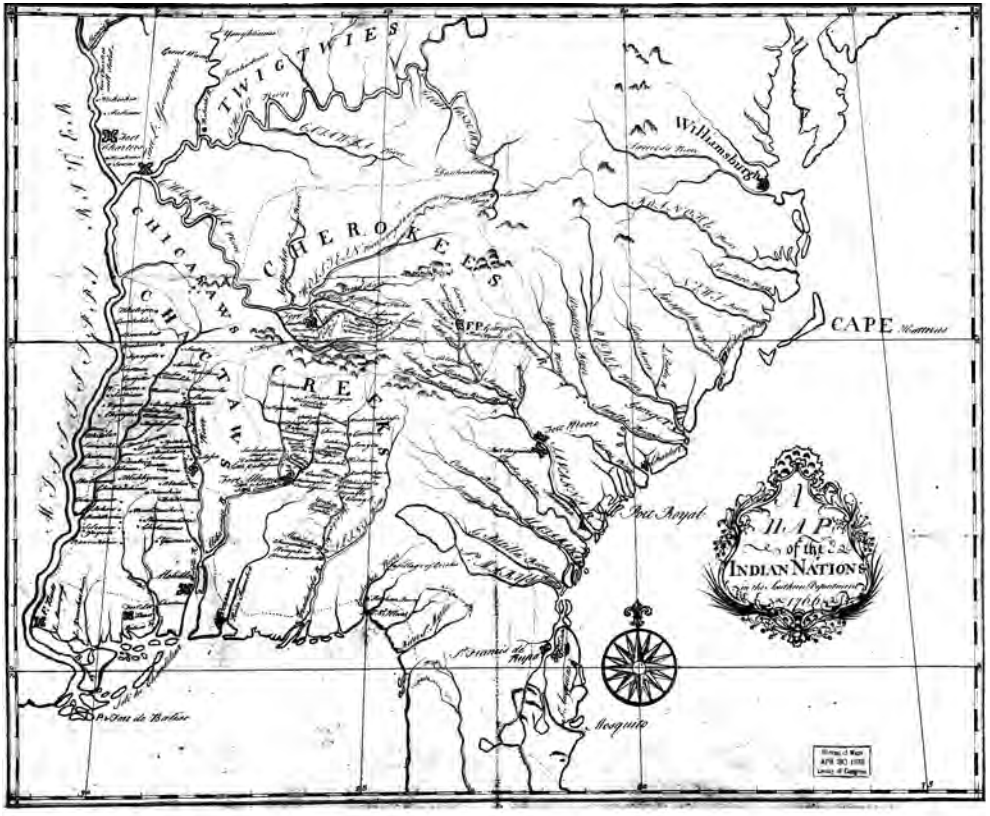


Figure 17. *Map by John Gerar William De Brahm.* A Map of the Indian Nations in the Southern Department, 1766. *Place of publication and publisher unknown. LC Maps of North America, 1750–1789. Scan by Daniel Cole. Also available online from the Hargrett Rare Book and Manuscript Library, http://hmap.libs.uga.edu/hmap/view?docId=hmap/hmap1766d4.xml;query=;brand=default.*

Most maps that mentioned Native Americans did not primarily focus on these first nations. One exception to the rule is the map of Indian nations in the Southern Department in 1766 (fig. 17). Granted, however, it is more of a sketched map than its contemporaries; nonetheless, it provides extensive spatial information on villages and major Indian national territories. This is one of the first maps primarily focusing on Indians, not treating them as an addendum.

Federal Period (1776–Late 1900s)

After the United States achieved independence, lands transferred from Indians to whites included several categories: those formally ceded by ratified treaty or agreement; those obtained by purchase; those taken by unratified treaty or agreement; and those expropriated without any Indian consultation, by

executive order, act of Congress, order of the secretary of the Interior, or private seizure. Many transfers recurred in both the colonial and federal periods due to successive land-hungry administrations, overlapping tribal claims, or Indian tribes that had relocated on already ceded land and later ceded portions so that still other Indian tribes could also locate there (especially in Oklahoma). Lands returned to Indians include those retroceded as reservations by one of the following actions: ratified or unratified treaty or agreement; executive order; act of Congress; or order of the secretary of the Interior. In addition, reservations were diminished or enlarged by court action.[45]

Near the start of the federal period, expeditions were sanctioned by the government to ascertain Indian territorial occupation and populations of the lands acquired by or desired by the United States (e.g., Louisiana Purchase). The Lewis and Clark expedition resulted in two primary maps in 1805 and 1814, along with an extensive database, showing Native American village locations and populations. The 1805 map (fig. 18) depicts the territory covered,

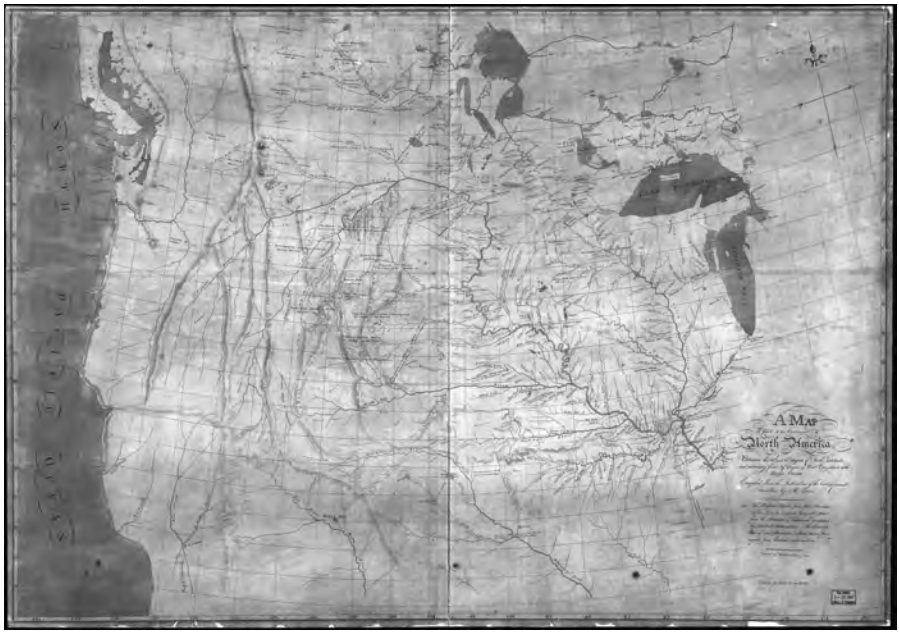


Figure 18. *Map by William Clark.* A map of part of the continent of North America: between the 35th and 51st degrees of north latitude, and extending from 890 degrees of west longitude to the Pacific Ocean / compiled from the authorities of the best informed travellers by M. Lewis. *Copied by Nicholas King, 1805.* [Note from map folder: Map was copied by Nicholas King from a sketch by William Clark, not one by Meriwether Lewis as indicated in the title.] *Location and Publisher unknown. LC Maps of North America, http://hdl.loc.gov/loc.gmd/g3300.ct000586.*

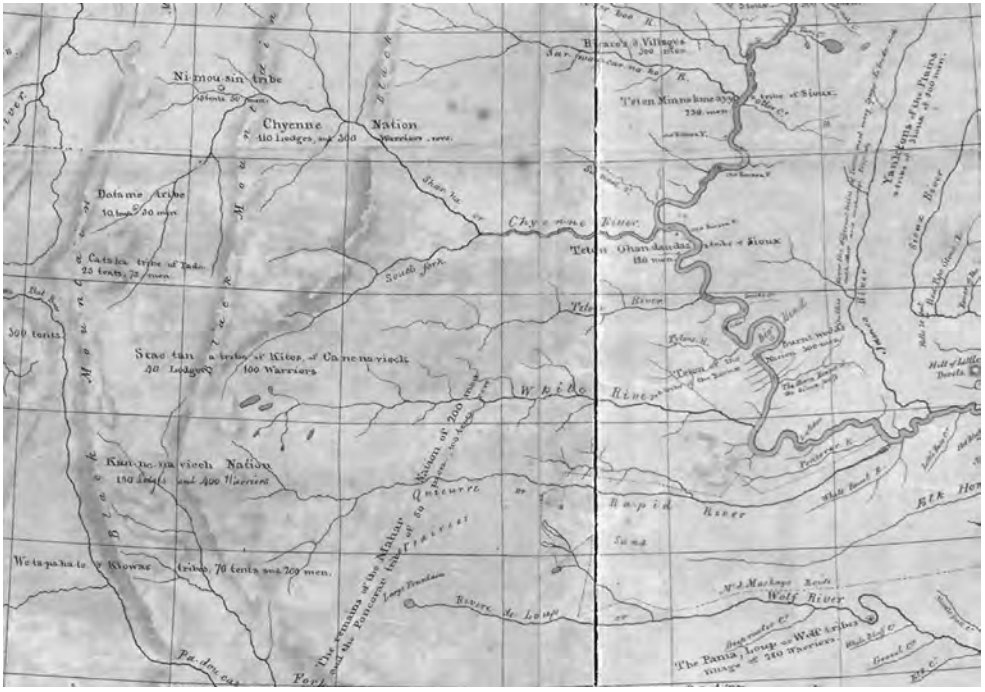


Figure 19. Close-up of William Clark's 1805 map with populations of tribal villages noted.

including population data and villages near and far from the Lewis and Clark expedition. These data were collected from both firsthand observations and secondhand knowledge as reported by Native informants. On figure 19, a close-up of the 1805 map derived from William Clark, note the populations (men or warriors) and locations of various tribes, most of which information came from indigenous sources. Some of this information referred to tribes located at considerable distances, which likely indicated the accuracy of Indian trading networks. On the 1814 map of the expedition (figs. 20–21), note the population (now depicted as the numbers of "Souls," which includes women and children), and locations of various tribes.[46]

Lewis and Clark were not the only ones to collect tribal information and population statistics. Zebulon Pike did so as well in his explorations of northern New Spain, especially in regard to the Pueblos of New Mexico. In Pike's explorations of northern New Spain, he compiled population data and mapped Native American villages and populations in the Southwest

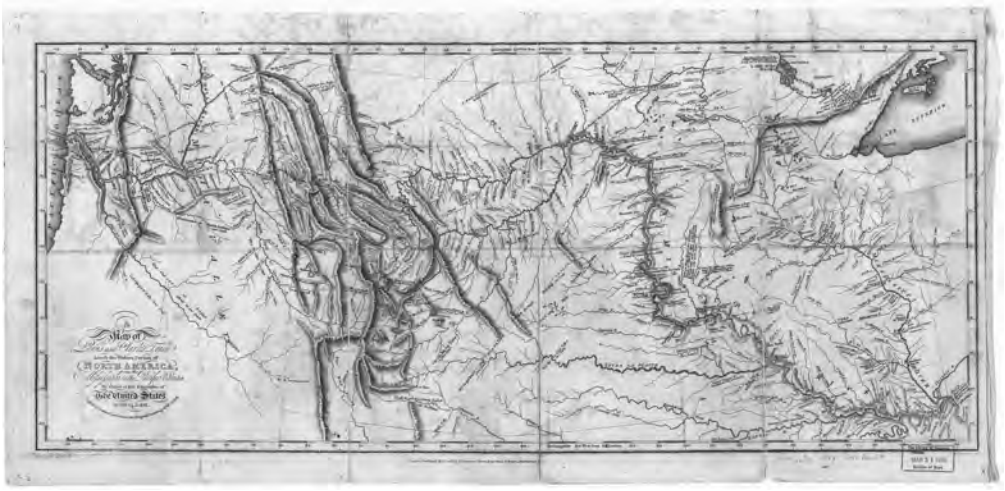


Figure 20. *Map by Samuel Lewis*. A map of Lewis and Clark's track across the western portion of North America, from the Mississippi to the Pacific Ocean : by order of the executive of the United States in 1804, 5 & 6 / copied by Samuel Lewis from the original drawing of Wm. Clark. *Neele, sculp. London: Longman, Hurst, Rees, Orme & Brown, 1814. LC Maps of North America, http://hdl.loc.gov/loc.gmd/g4126s.ct000763*.

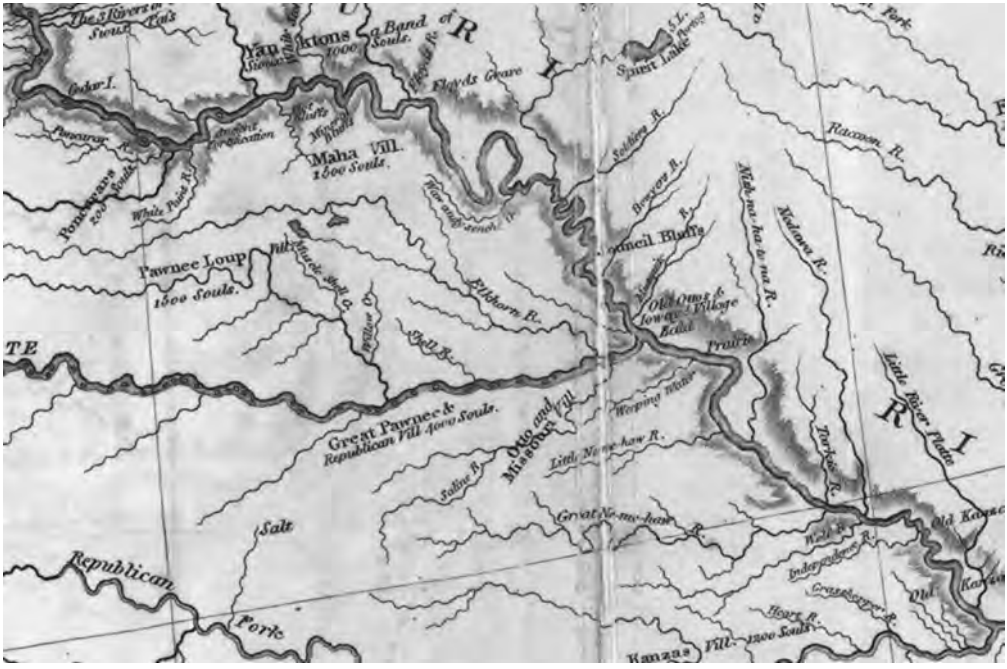


Figure 21. Close-up of Samuel Lewis' 1814 map with populations of tribal villages noted.

Figure 22. *Map by Zebulon Montgomery Pike.* A Map of the Internal Provinces of New Spain, *Location and Publisher unknown, 1807. LC Maps of North America, http://hdl.loc.gov/loc.gmd/g4295.np000060.*

(figs. 22–23). But Pike's population data do not indicate whether the numbers include just men (likely) or also women and children.

In all, there were 389 ratified or valid and operable treaties and 79 ratified agreements between the United States and Indian nations, dating from the treaties with the Six Nations, Delaware, and Shawnee in 1775 to the last major agreement with the Cheyenne River Sioux in 1954.[47] It is essential to identify one of the earliest field maps based upon treaty. That map, by Pierre-Jean de Smet in 1851, delimits tribal territories pursuant to the Laramie Treaty (fig. 24). This map reflects, in many instances, a benign effort on the

Figure 23. Close-up of Zebulon Pike's map with his estimation of the populations of the individual Pueblos in present-day northern New Mexico.

Figure 24. *Map by Pierre de Smet.* Map of the upper Great Plains and Rocky Mountains region] / respectfully presented to Col. D. D. Mitchell by P. J. de Smet, *Location and Publisher unknown, 1851. LC Maps of North America, http://hdl.loc.gov/loc.gmd/g4050.ct000883.*

part of government to map with a protribal perspective, although it was not very long before intrusions upon those mapped territories would take place. Yet the map itself is a significant early venture into the cartography of Indian affairs.[48] As one can note from figures 25, 26, and 27, there was a steady recession of Indian land possession from east to west across the forty-eight contiguous states. In the mid-nineteenth century, white acquisition of land jumped from the center of the country to the west coast, resulting in the final lands being acquired in the Rockies and Great Basin.

While the federal period might appear to be the first time that Indian-white land transfers were handled in a continuously unified manner, this was not always the case. During the late 1700s, several states set aside lands between the Appalachians and the Mississippi River to pay war damages or military bounties. Additionally, "as late as 1802, Georgia retained title to

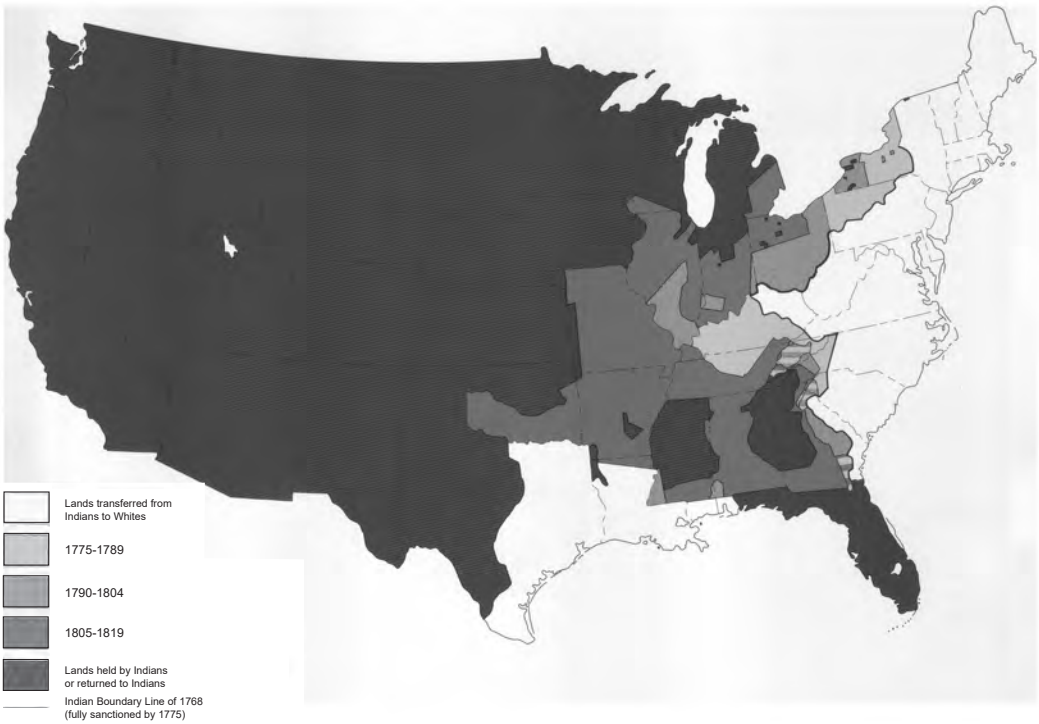


Figure 25. *Map by Daniel Cole.* Indian-White Land Transfers from 1775–1819. *Compiled for Arrell M. Gibson, 1987, "Indian Land Transfers," in* History of IndianWhite Relations, *ed. Wilcomb E. Washburn, vol. 4 of W. Sturtevant, gen. ed.,* Handbook of North American Indians, *214 (Washington, DC: Smithsonian Institution).*

western lands, granting much of the territory embracing the future states of Alabama and Mississippi to a group of speculators under the aegis of the Yazoo Land Company, in complete disregard of Indian title, rights, or privileges."[49]

Throughout the ensuing century, not all lands were expropriated by treaty. And some of those lands taken by treaty were not ceded; for instance, the treaty with the Caddo only extinguished their right of occupancy, not their title to the land.[50] Actions by the president, Congress, secretary of the Interior, or even private individuals on a smaller basis, amounted to numerous land exchanges. In addition, while treating with other countries (France, Great Britain, Russia, and Spain), the United States recognized these countries' land title based on discovery or conquest, sometimes with little or no regard for

Figure 26. *Map by Daniel Cole.* Indian-White Land Transfers from 1820–1864. Compiled for *Arrell M. Gibson, 1987, "Indian Land Transfers," in* History of IndianWhite Relations, *ed. Wilcomb E. Washburn, vol. 4 of W. Sturtevant, gen. ed.,* Handbook of North American Indians, *215 (Washington, DC: Smithsonian Institution).*

Figure 27. *Map by Daniel Cole.* Indian-White Land Transfers from 1865–post 1895. *Compiled for Arrell M. Gibson, 1987, "Indian Land Transfers," in* History of IndianWhite Relations, *ed. Wilcomb E. Washburn, vol. 4 of W. Sturtevant, gen. ed.,* Handbook of North American Indians, 216 *(Washington, DC: Smithsonian Institution).*

Indian title. Because not all treaties and agreements were ratified, large areas of the country were never transferred by ratified treaty, especially in California.

Many lands were transferred to accommodate settler pressure or as a consequence of Indians being on the "wrong" side in war. Following the War of 1812, there was intense public pressure to take over Indian lands and to move the Indians out, especially in the southeastern states. Removing the tribes to the newly designated Indian Territory did not take place all at once. Theoretically, according to the Trade and Intercourse Act of 1834, Indian country was wherever Indian title was not extinguished—that is, lands west of the Mississippi.[51] Most of the tribes of the old Northwest lost their lands and were removed in the period from 1815 to 1825, while most of the southeastern tribes lost their lands and were removed in the period between 1817 and 1842 (fig. 28). Whites who already occupied some of these lands in Arkansas and Missouri demanded that the Indian migrants be moved even farther west.[52] Each move, whether to the Arkansas-Missouri region or later to the Kansas-Oklahoma area, required the transfer of land from Indians who occupied or claimed the

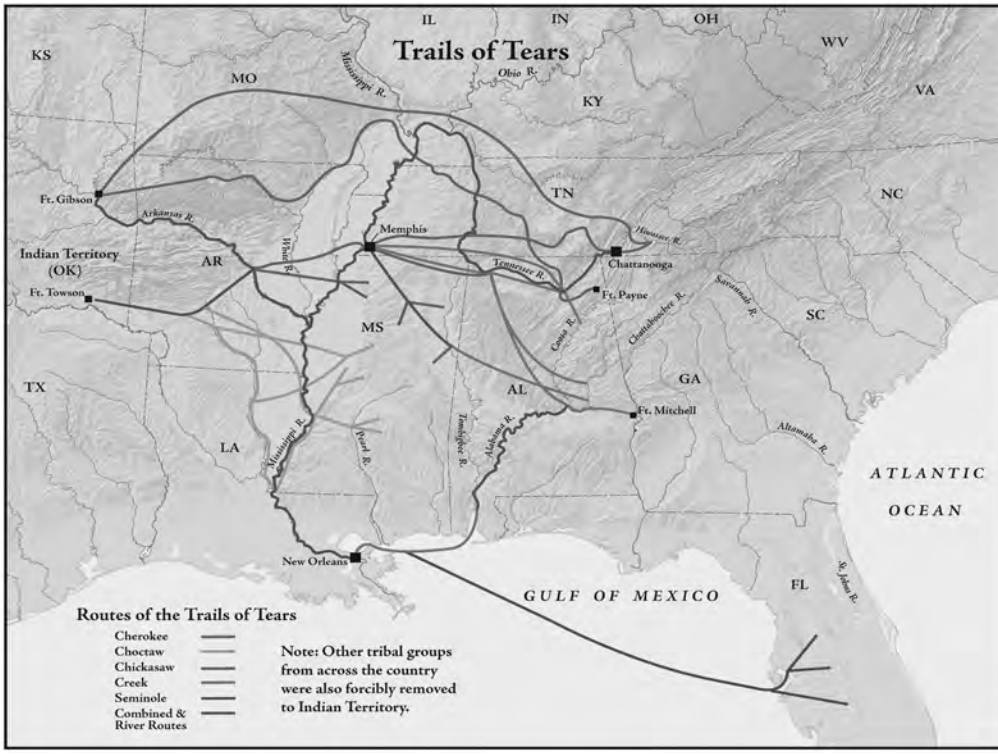


Figure 28. *Map by Daniel Cole.* Trails of Tears depicting the routes followed by the primary Indian nations of the southeastern United States to Indian Territory. *Compiled for the Smithsonian Institution Traveling Exhibition Service for the Journey Stories exhibit, 2008.*

area in question (fig. 29). This removal and containment policy, as formalized in the Indian Removal Act of 1830, resulted in multiple transfers of lands in the four-state region just mentioned, so that newly arriving Indians would have room for their tribes and would, in turn, make room for later arrivals of other tribes.

The compression of western Indian lands continued throughout the rest of the 1800s, confining the Indians to smaller and smaller tribal areas and culminating in the present-day reservation system. Again, this process of compression was primarily the result of white settlement pressure together with the military conquest of the western United States from the 1850s to 1880s.

In 1887 the General Allotment Act, or the Dawes Severalty Act formalized the assimilation of Indians into white culture through individual ownership and stewardship of land. Aligned with the Township and Range surveys, allotted lands in the reservations generally granted 160 acres to heads of households and 40 acres to individuals. But the particular allotment ranged from

a few acres to each Indian, as with the Pala Indians in California, to as high as around 600 acres each among the Osage and Sioux and even 1000 acres each among the Crow in Montana. In some instances, the status of the individual and the character of the land taken in allotment had considerable to do with the size of the allotment. In many cases, the "Head of Family" was entitled to double the quantity of land (Act of March 2, 1889, 25 Stat. 888-90, for illustrative purposes); in others, one acre of agricultural land was equivalent to two acres of grazing land (Act of Feb. 8, 1887, 24 Stat. 388); and in others, one acre of irrigable land was equal to two acres of agricultural land or four acres of grazing land (36 Stat. 860).[53]

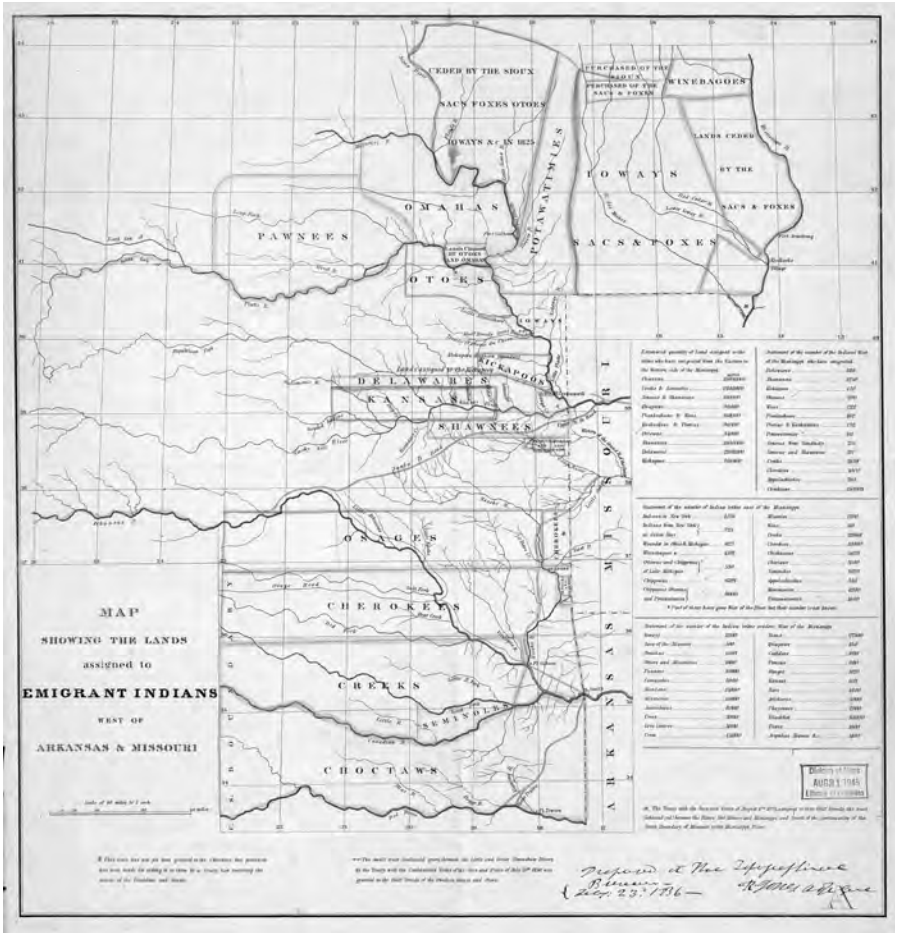


Figure 29. *Cartographer unknown.* Map Showing the Lands assigned to Emigrant Indians west of Arkansas and Missouri. *Created by United States Topographical Bureau, 1836, from documents concerning Col. Henry Dodge's expedition to the Rocky Mountains, House Document 181, 24th Cong., 1st session, 1835–36, serial 289, LC Many nations, 200. LC Maps of North America, http://hdl.loc.gov/loc.gmd/g4051e.mf000044.*

The major results of this act were the failure of its policy to turn Indians into productive, landholding farmers, and the loss of 86 million acres of Indian land.[54] The failure is attributable to the following: (1) at 160 acres the area was insufficient for farms in the semi-arid west; (2) many western Indians had no tradition of agriculture and did not wish to farm; (3) the need for money resulted in most lands being sold by the Indian allottees; and (4) so-called "surplus" lands not allotted to the Indians were opened to homesteaders. Figure 30 depicts the amount of reservation lands held by Indian nations prior to the Dawes Severalty Act, and figure 31 illustrates the process of allotment in the lands of the Creek Nation, Indian Territory, during 1899. Consequently, out of 136 million acres of Indian land in 1887, in 1934 50 million acres remained when the Indian Reorganization Act was passed, which ended allotments and the sale of Indian lands.[55] Fortunately, the act also "restored to tribal ownership surplus Indian lands available for non-Indian purchase, and provided for the acquisition of additional land for the tribes in order to maintain 'tribal land bases.' During the period 1934–1950, the Indian tribal estate actually increased."[56]

In 1953 House Concurrent Resolution 108 initiated a federally sponsored program to terminate Indian tribal and reservation status. Twelve termination acts were passed by 1962, and later, in 1970, the program was ended (fig. 32). Since 1973, the status for some tribes and reservations has been restored.[57] Other threats and gains to Indian lands have included governmental land seizures for public projects and lands recovered through the Indian Claims Commission and Congress, respectively.[58]

Overall, and until the last few decades, government mapping has largely been a one-sided affair—that is, to the advantage of the government. While tribal members often contributed to the details placed on many maps, the end result was often to use these maps in planning the movement and restriction of the tribes, thus preventing indigenous people from keeping or obtaining lands that are good for farming or resource use.

Present-day Indian Lands

In 2012, the BIA identified 326 "land areas," which includes 290 federal reservations (plus an additional twelve state reservations), along with extensive land holdings by the Alaskan Native Regional Corporations (figs. 33, 34, and 35). The problem that arises when considering present-day Indian lands is the misconception that equates reservations with Indian land, and the assumption that recognition conveys land status for all of the 566 "tribal entities" that exist within the United States. As Sutton has noted, "the rubric 'Indian reservation,' unless more clearly defined in its various uses, wrongly connotes a

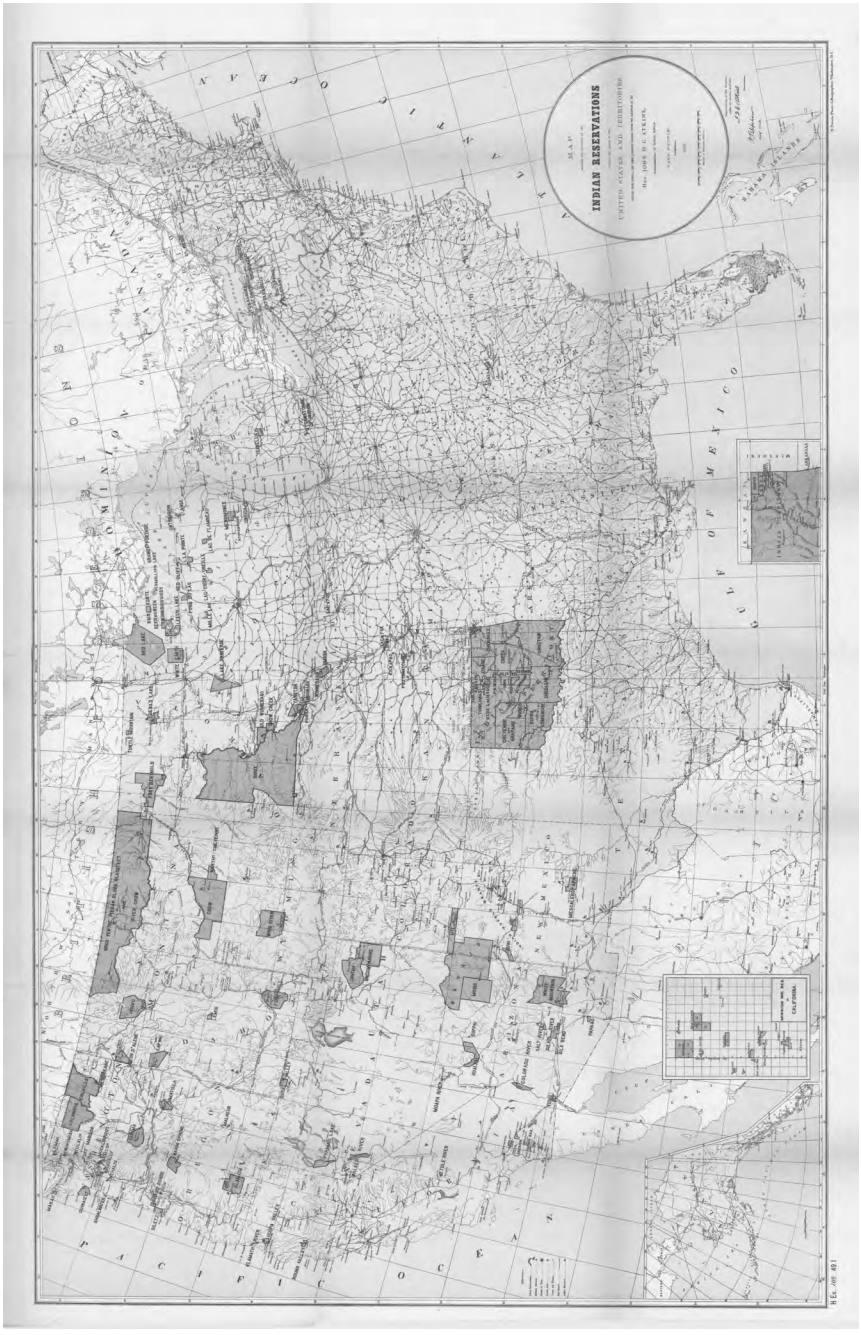


Figure 30. *Map by Paul Brodie.* Map showing the location of the Indian reservations within the limits of the United States and territories. *Compiled under official and other authentic sources, under the direction of the Hon. John D. C. Atkins, Paul Brodie, Draughtsman, 1885. Insets of Alaska, Mission Ind. Res. in California, and northeastern Indian territory, State Historical Society of North Dakota, http://digitalhorizonsonline.org/u?/uw-ndshs,2329.*

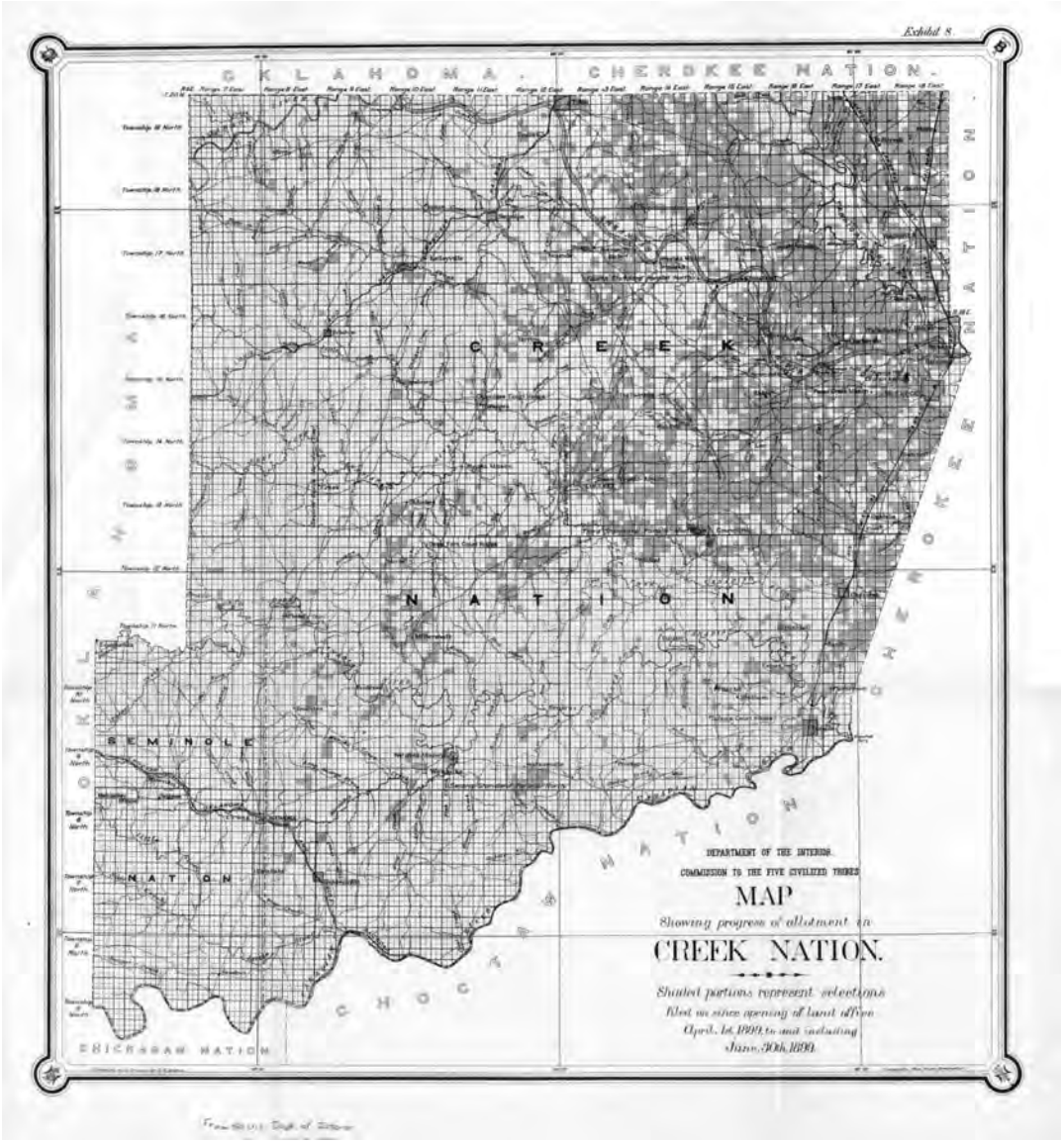


Figure 31. *Map by C. H. Dana.* Map Showing progress of allotment in Creek Nation. *At the head of title:* Department of the Interior, Commission to the Five Civilized Tribes. *Below the title:* Shaded portions represent selections filed on since opening of Land Office April 1st 1899 to and including June 30th 1899. *Location and Publisher unknown. LC Many nations, http://hdl.loc.gov/loc.gmd/g4022c.ct002106.*

Figure 32. *Cartographer unknown.* BIA Indian Land Areas map, General edition (1971). *This map includes federal and state reservations, recognized tribes without trust lands, former reservations in Oklahoma, as well as terminated tribes between 1953 and 1970. Map scanned by Daniel Cole.*

Figure 33. *Cartographer unknown.* Indian Lands in the United States. *This is the last officially published nation-wide map from the BIA Geographic Data Services Center, 1998. Map scanned by Daniel Cole, http://rockyweb.cr.usgs.gov/outreach/lewisclark/indianlandsmaps.html.*

universality of legal status, political organization, and perhaps even economic poverty."[59] This statement still holds true.

One major exception to the "reservation as Indian land" disparity are the Alaskan Native Regional Corporation (ANRC) lands (fig. 36). In fact, only one small reservation exists in all of Alaska: Annette Island. That reservation aside, the Alaska Native Claims Settlement Act lands patented, conveyed, or selected show a considerable difference in land holdings. Elsewhere in the United States, reservations seldom hold jurisdiction over the solid blocks of land that one sees labeled on a map. Because of the allotment and termination policies, as well as occasional government actions of eminent domain, many reservations contain large sections of non-Indian-owned land including white towns. Other reservations share jurisdiction with the federal government, for instance, Wind River Reservation and the Bureau of Land Management. These white towns that lie within reservations consider themselves separate; in turn, the reservations that lie within counties and states consider themselves separate. That is, while the reservations are not independent or autonomous of the United States, they are independent of the states, making each reservation "a semi-autonomous enclave."[60] In simple, nonlegal, land-based terms, a reservation is a geographic area established by treaty, statute, or executive order, as defined by the courts, over which a tribal entity exercises some degree of civil jurisdiction.[61]

Figure 34. *Cartographer unknown.* Indian Lands in the United States. *This is the current non-officially endorsed nation-wide map from the BIA, Office of Trust Services, Division of Water and Power, 2011. Note the following disclaimer by the BIA:* The map and all associated data therein were created on an informal basis to provide general reference for a non-specific audience. As such this map and all associated data should not be used in any manner other than general reference and endorsement by the BIA is not expressed nor implied in any manner. The last update to any of the data contained within this map was 2005–2007 and was based on informal modifications that were not endorsed by the BIA. This map is not to be used at any other scale than the one listed on the map.

Figure 35. *Cartographer unknown.* This map by the Census Bureau is a rendition of American Indian reservations and tribal areas in the United States, 2010, *http://www.census.gov/geo/www/maps/aian2010_wall_map/aian_wall_map.html.*

Indian lands, whether on reservation or off, may be grouped into two classes: tribally or communally owned, and individually owned. They are further subdivided into the following subclasses:[62] First, if the land is tribally or individually owned in fee simple, then the land is taxable like any property an individual non-Indian owns. This category can include fee simple Indian allotments as well as homesteads in the public domain obtained by individuals who were tribally separated or were members of a non-reservation tribe.

Second, if the tribe or individual owns restricted fee land, then this nontaxable land is restricted as to the sale or encumbrance without the consent of the Congress, the president, or the secretary of the Interior. Third, where legal fee or title is held by the United States in trust for a beneficiary (tribe or individual), this land is referred to as trust land. Trust land need not be on the reservation; for example, more land is held in trust off-reservation for the Turtle Mountain Band of Chippewa in North Dakota than exists in the reservation. Generally both restricted fee lands and trust lands are managed similarly by the Bureau of Indian Affairs. Lands that were originally allotted

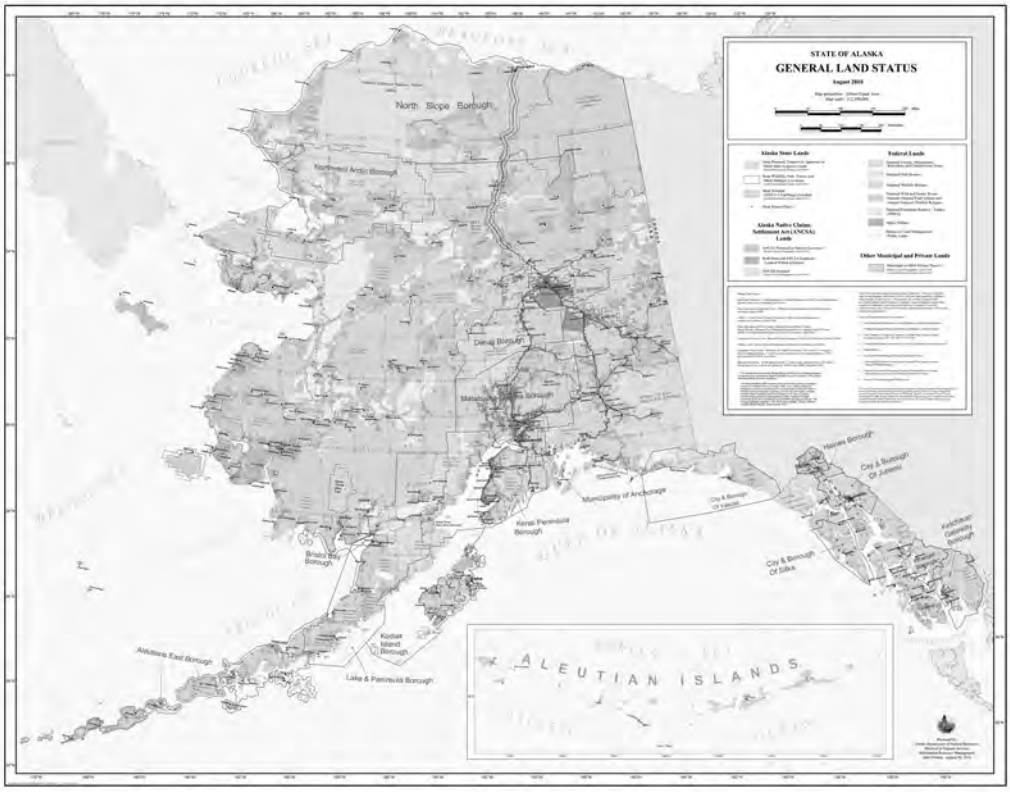


Figure 36. *Cartographer unknown*. State of Alaska General Land Status. *Bureau of Land Management 2010. This map is periodically updated by the BLM, and as such, is the most detailed rendition of land holdings as derived from the Alaska Native Claims Settlement Act. Map scanned by Daniel Cole.*

may continue to be held in restricted fee or trust status by individual Indian heirs or by other Indians or tribes through subsequent sale.

Fourth, allotted restricted fee or trust land includes land secured by inheritance. This land is divided up between descendants of deceased allottees. The multiple owners may lease the land in order to get a return on the property. Janke cites an extreme example of this scenario: 160 acres allotted to one Indian in 1887 descended to 312 heirs by 1985.[63] These heirs share with each other in the full ownership of the property, so the Bureau of Indian Affairs administers the leasing of the land and the payment to the individual Indians.

Fifth, the fee in some places is held by a third party, for example, the secretary of the Interior for the Sac and Fox Reservation in Iowa, or a state government for the Tonawanda Reservation in New York. Sixth, funds from the sale of restricted land or oil and gas royalties on restricted land might be

used to convert other land to restricted fee land for the same Indian or tribe.[64] Alienated land is any land where the trust or restricted status has ended, whether by sale, inheritance, or other conveyance. These lands have resulted in the "checkerboarding" of many reservations, where white land ownership at times exceeds Indian ownership. Alienated land may also include property interests that lie outside federal control, such as leaseholds and rights-of-way.[65]

There are still other types of Indian land classification. In Oklahoma, the Osage have retained total subsurface reservation rights but have only scattered surface holdings in Osage County. And a new category of lands was included in the agreement between the federal government and the Navajo tribe. A broad swath of land in northwestern New Mexico was set aside for Navajo use on lands held by the government.[66] The key word at this point is *use*, not ownership. Whether or not that will change in the future is unknown.

All of what has been discussed presents a complex historical scenario of Indian-white land transfers. Whether non-Indians obtained the lands by purchase, fraud, cession, seizure, homesteading, trade, or conversion, the results are: (1) many tribes lost all or most of their lands held at contact; (2) those lands that have been retained are often different from the areas inhabited at contact; and (3) Indian lands today display a complex and unique land tenure pattern within the United States.

One major cartographic tool encouraged a more rapid displacement of the tribes—a mapping tool available to surveyors and settlers. This tool is the public land survey system or land rectangular survey, which enabled other mapping corners to be created once a base control was established on the ground by chaining and other means to establish townships, sections, and reservations and homesteads.[67] Added to the relative advantages of the land survey was the fact that its measurements could be recorded in statutes and executive orders (such as Section 20, Township 10S, Range 1E in fig. 37). The sample map was produced by the surveyor general of California in 1857, the first mapping of northern San Diego County, revealing the existence of Indians in terms of village sites and farmland. Superimposed are the bounds of the then-existing Cuca Rancho, which ultimately diminished the acreage that became the La Jolla Indian reservation.[68]

In the course of time, mapping in part tended to corrupt the database so that it would prove difficult to restore indigenous cartographic accuracy. This cartographic consequence became a major event in the litigation process for tribal land claims. The government, of course, relied both on the cartographic record and newer interpretations by expert witnesses, as did opposing experts assisting the tribes. Tribal input represented a needed demonstration of indigenous culture, but it must be said that the adjudicated boundaries often reflected compromises between less-documented tribal data and "legally"

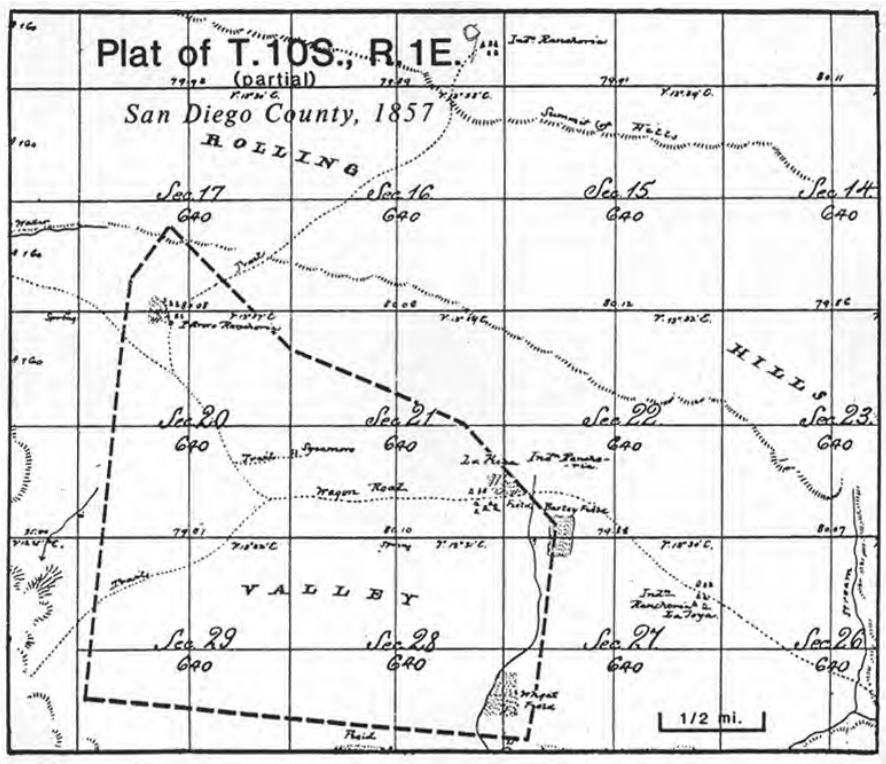


Figure 37. *Map by Harold Fox. Derived and modified from* The 1857 Plat of La Jolla (Luiseño Country). *Surveyor General of California (published in Sutton, 1988).*

documented government cartographic data. This is to say that while tribes won many cases, the cartographic record often worked against their gaining the largest possible aboriginal land claim.

The continuing cartographic effort of the government must be seen as an effort to maintain mapping records by updates, in many ways to provide for resource management for the tribes and their members whether they have held allotments or assignments (by tribes). Within the government mapping scheme, the cartography of allotment might be perceived as quite accurate with newer technology, but the record also suggests that errors occurred in field mapping. In a similar way, field errors were bound to occur in the comprehension of the land rectangular survey by uneducated or less educated field surveyors.[69]

At the end of the nineteenth century errors in the field were either noticed or bypassed by such eminent scholars as Charles C. Royce. With unratified treaty and unsurveyed areas, he frequently fudged his maps. For example, the boundary between areas 529 and 597 in Montana and Wyoming was

unsurveyed and so had three sweeping arcs delineating area 529's eastern border (fig. 38). Since Royce relied heavily on the rectangular land survey, another observable problem was Royce's assumption that the Township and Range lines were consistently straight. While he knew that corrections had been made along the baselines, he did not seem to be aware of other deviant survey line work, nor did he exhibit any awareness of improperly surveyed reservation boundaries. A third, but minor, problem is that Royce did not check for edge-matching between any of his maps—for example, the boundaries for treaty areas that cross state lines frequently did not meet on his maps.[70]

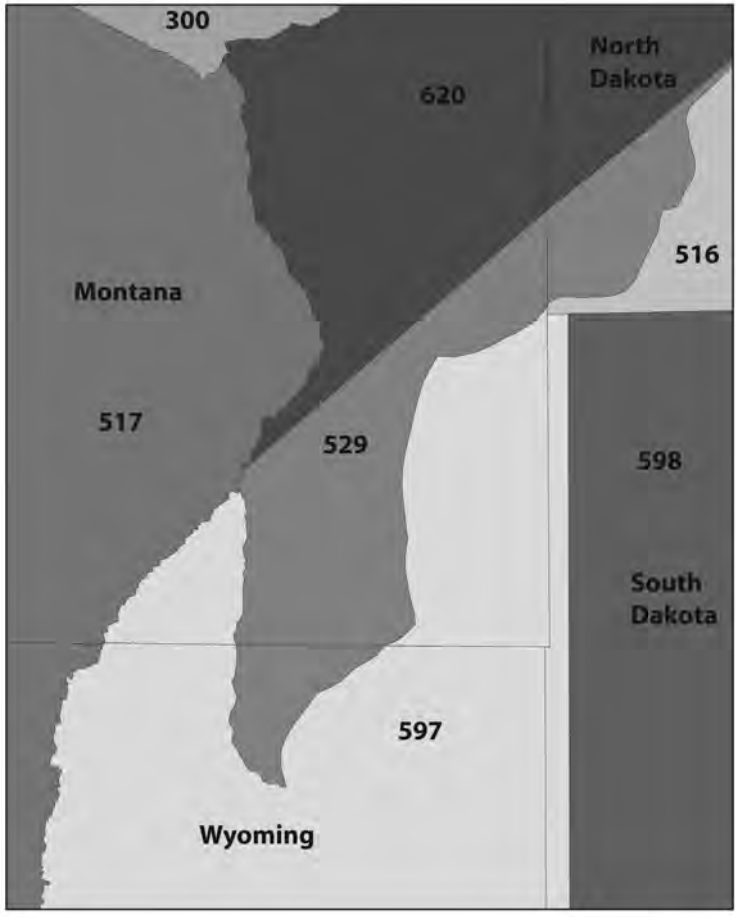


Figure 38. *Map by Daniel Cole. Derived from map numbers 11* (Dakotas 1), *39* (Montana 1), *and 66* (Wyoming 1) *in Royce, 1899.*

Another problem that appears in Royce's maps concerns the geographic knowledge of his day regarding drainage divides such as the continental divide (fig. 39). Many tribal and treaty boundaries followed said divides, and Royce often had to guess as to their delineation. For instance, in Montana, those treaty lines on his map following the continental divide deviated considerably from reality. Royce apparently was aware of the problem concerning drainage divides since he would frequently draw some of these dividing lines across

Figure 39. *Map by Charles C. Royce. Scanned western portion map number 39* (Montana 1) *from Royce with continental divide overlay by Daniel Cole.*

streams, a subtle but nonetheless indicative cartographic statement that these lines were not to be used for legal or definitive purposes. Lastly, since his work concluded in 1894 and since Indian land tenure continued to be rather dynamic, a number of changes and proposed changes must be researched independently of Royce.[71] For instance, figure 40 shows the proposed state of Sequoyah in 1905, revised by the US Geological Survey (USGS) in 1902, and

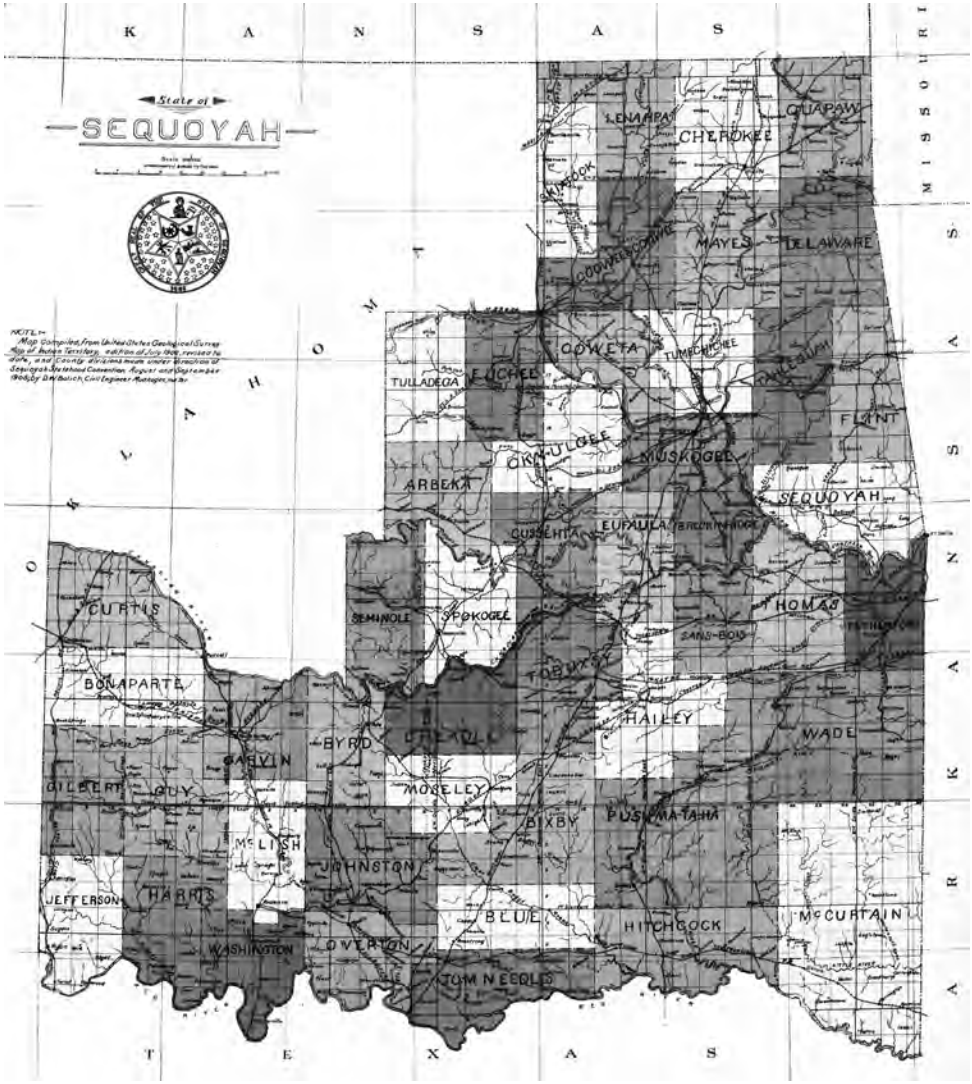


Figure 40. *Map by D. W. Bolich, Civil Engineer, Muskogee, Ind. Ter.* State of Sequoyah. *Map compiled from United States Geological Survey Map of Indian Territory, edition of July 1902, revised to date, and County divisions made under the direction of the Sequoyah Statehood Convention, August and September 1905, http://upload.wikimedia.org/wikipedia/commons/1/1c/Sequoyah_map.jpg.*

made under the direction of the Sequoyah Statehood Convention. It serves as a significant symbol of Indian resistance to statehood with Oklahoma Territory.

Even with the use and popularity of Royce's work, it is unlikely that he intended any of the sixty-seven maps to be used for legal purposes. Royce primarily created these maps, along with the associated tables and alphabetical listing by tribe of land cessions, together with Thomas's text and allotment table, to be used as works of reference.[72] Regardless, they became the foundation of cartographic testimony in Indian land claims litigation.

On one hand, the accuracy problems noted above can be addressed through research using modern cartographic tools and data. On the other hand, other errors did occur and unfortunately became encoded into government maps. E. Richard Hart has extensively studied historical documents concerning the deliberate or accidental error that was committed in both the language of the executive order in regard to the Hualapai reservation and its subsequent map.[73] Figure 41 illustrates an example of an improperly surveyed reservation boundary that became the de facto official boundary. This error resulted in approximately 100,000 acres of land on the west side of the reservation in the executive order being denied to the tribe in spite of an earlier survey in 1881 conducted by US military personnel.

In light of tribal self-determination, currently there is considerable effort to develop the technology and skills of Geographic Information Systems (GIS) and pursue tribal mapping in its own right. Tribes seek to upgrade maps in order to improve upon reservation economics, expand tourism, mining, lumbering, and other endeavors. Frankly, one should be concerned that even such contemporary mapping often falls back on a modified or diminished database. Apparently a number of tribes have taken that into consideration.

Academic Contributions

All of the foregoing, of course, has taken the perspective of governmental purpose relative to tribal reaction. Let's consider the cartographic experience of academia and related researchers and mapmakers. There has long been a popular interest in American Indians, and mapping them has included very general culture-area maps, many of which have been interpreted as territorial in meaning. Anthropologists and historians have been the mapping leaders. Greater input for cartographic presentation appears in special thematic maps such as those of Native migrations, languages, and others. Archaeological maps have tended to rely more and more on accurate databases since scientists do turn to local geology and geomorphology for assistance in dating and other concerns. And a quantum of academic maps exist in atlases, books, articles,

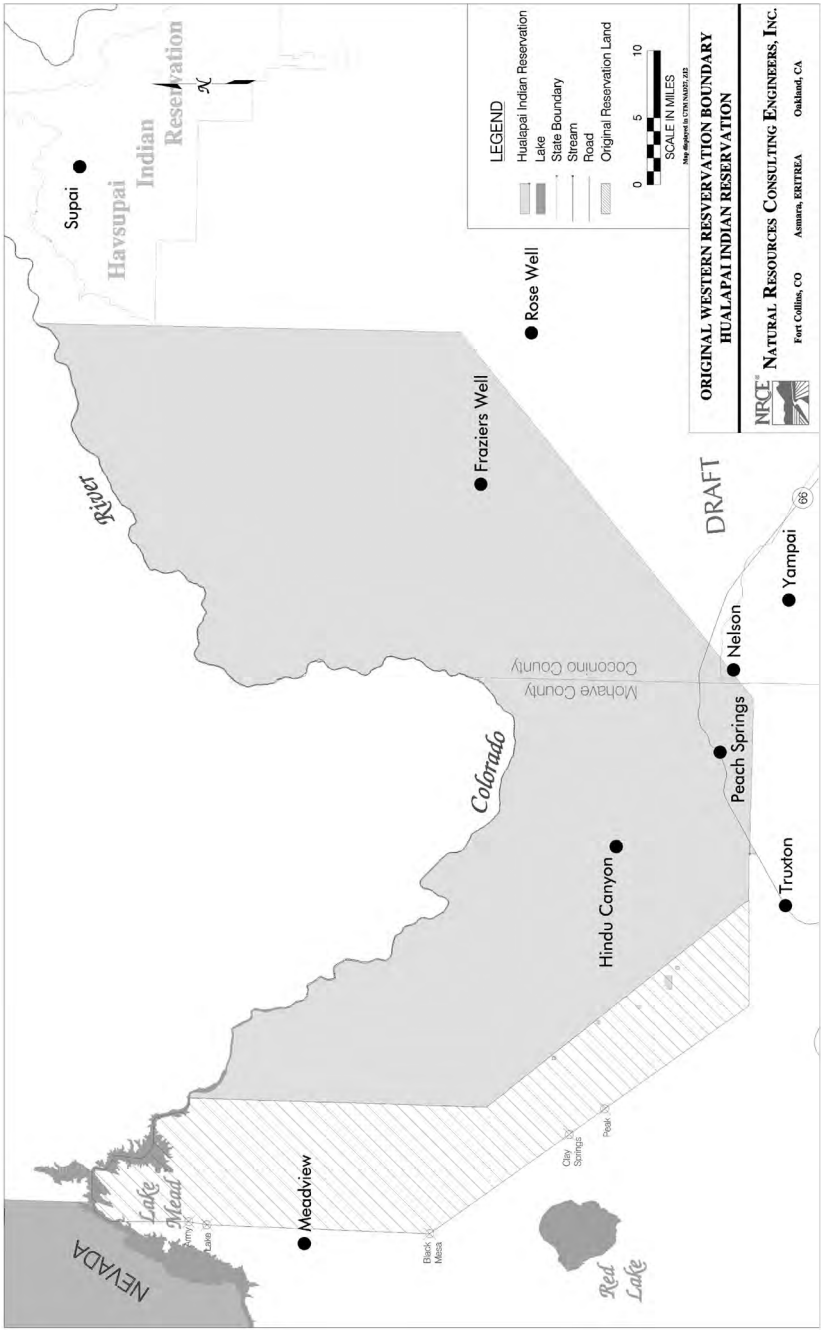


Figure 41. *Map by E. Richard Hart Associates*. Original Western Reservation Boundary, Hualapai Indian Reservation. *Fort Collins, CO: Natural Resources Consulting Engineers, Inc., 2007. Permission granted from the Hualapai Tribe, 2013.*

wall maps, and other forms that fall back on earlier data, which are sometimes flawed, or are thematic in type.

Academic interest in the mapping of American Indians and other indigenous peoples goes back at least to the mid-nineteenth century, for which we have sufficient evidence of cartographic efforts by several disciplines. But serious geographic research on content, design, and production of relevant maps may well date only from the growth of certain academic fields at a few universities and other research institutions. Among other professional groups, perhaps we should question our oldest geographical organization, the American Geographical Society, which was established by the mid-nineteenth century. One may scan the pages of the *Geographical Review* and its predecessor volumes to discover a number of studies about Native Americans in both hemispheres accompanied by a number of maps. Careful review of all issues of the *Journal*, *Bulletin*, and *Geographical Review* from 1851 indicates that the Society continued to show strong interest in indigenous peoples through publication of articles and notes, and even stronger interest and participation in the development of cartography covering both Americas and the United States specifically.[74] Of the latter, the society has regularly reported the work of the US Geological Survey and the Hydrographic Office, among other agencies, and created the "Millionth" map (16 miles = l map inch) which has dealt with the mapping of Latin America. We do not find any specific discussion of a contribution to the cartography of American Indians, Aleuts, Inuits, or Hawaiians. The Society may not have chosen to focus on developing a cartography that addressed interests in Native Americans. Identifying a link between such early cartographic endeavors and the contemporary cartography of Native America with any specificity may not be possible. And of course, geographers are not the sole creators of maps in this field—for example, the Bureau of American Ethnology, a more academic than governmental agency that dates from the latter half of the nineteenth century, did turn to cartography as an important vehicle for exhibiting knowledge of American Indians.

The Association of American Geographers, founded in 1904, began mostly as an academic organization of physical geographers and geologists. While now and then an article would appear in the *Annals* that dealt with Indians, the society did not include any formal focus on Native America until the establishment of the American Indian Specialty Group, which later changed the name in 2000 to the Indigenous Peoples Specialty Group. In recent decades, members of the groups have expressed interest in GIS.[75]

Before we explore the other disciplinary interests, consider Carl O. Sauer and the University of California, Berkeley (UCB) geographers. As early as the mid-1920s, Professor Sauer apparently expressed a strong research interest in indigenous population numbers, especially to overcome and correct

misinterpretations of earlier data. He pursued such research and encouraged mapping accordingly.[76] According to Edward Price, "Sauer always stressed the method of laying data out on maps to get at the essence of geographical relations. Such maps raise and answer a variety of questions about proximity, distances, access, sequences, and directions. Comparing map distribution provides hints and measures of correlation."[77] Feasibly, Sauer influenced colleagues and students in more than one discipline through the development of anthropogeography at UCB. Sauer and his students interacted with other scholars at UCB, who also benefited from the geography faculty. Leading the way was anthropologist Alfred L. Kroeber and his students: Robert Heizer, who later became a colleague at UCB, and Omer C. Stewart.[78]

While geographers map a quantum of subject matter and have innovated in the field of cartography, the mapping of tribal America—its approach as well as subject matter—received its greatest impetus from anthropologists, especially UCB's Alfred L. Kroeber and his colleagues. Kroeber's main contribution to the cartography of American Indians came with the publication of *Natural and Cultural Areas of Native North America*, which focused on culture and as such was not limited to concepts and practices of territoriality (figs. 42–43).[79] Kroeber's territorial delimitations were ethnographic and not intended to be political. His maps, in a sense, fuse cultural and tribal data

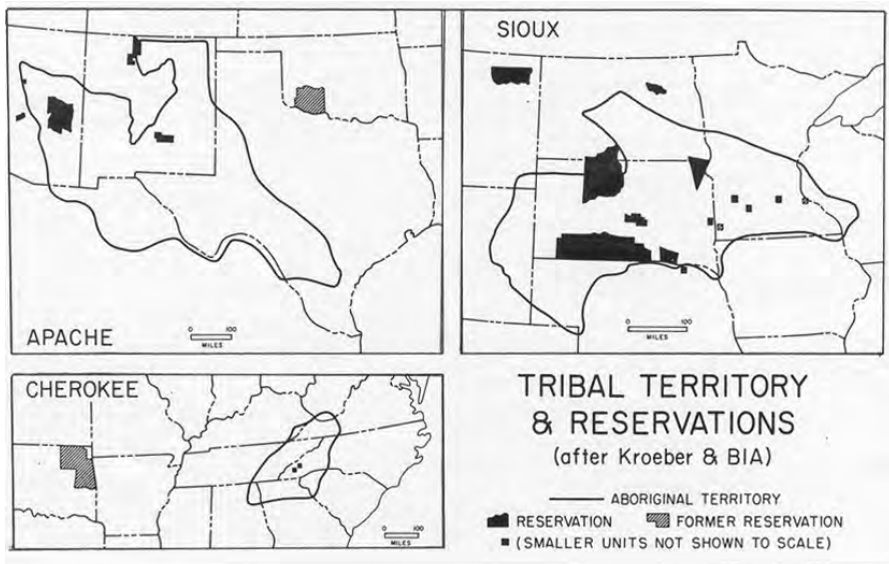


Figure 42. *Maps by Imre Sutton.* Tribal Territory and Reservations. *Spatial data for these three maps were adapted from Kroeber (1939), the US Congress (1953) and the BIA, from Imre Sutton,* Indian Land Tenure (*New York: Clearwater Publishing Co., 1975*), 33.

Figure 43. *Map by Alfred L. Kroeber.* Native Tribes of North America. *In* Cultural and Natural Areas of Native North America *(Berkeley, CA: University of California Publications in American Archaeology and Ethnology, volume 38, 1939).*

about place. As he noted, the maps make "no pretense of original research or of finality. It has involved many judgments between differing delimitations." When there were "irreconcilable conflicts," natural features were relied upon and of those, "watersheds rather than streams." Furthermore, as he noted, "[The] map does not . . . represent conditions at one absolute date nor even at one relatively consistent historic moment, such as that of discovery. It attempts to indicate tribal territories approximately as they were constituted at the time of first occupation by Europeans."[80]

Since Kroeber's focus was culture, he found that boundaries represented the weakest feature when mapping whole cultures. He spoke of tribes living along an "interarea" boundary as having much in common, and he would have preferred a cultural map without boundaries. To be sure, many of the sources cited in Kroeber's work included references to Native informants, but ultimately his interpretations were those of the scholar.

Kroeber's student Robert F. Heizer published a small but significant compilation that related language and territory in Native California. Although this ethnologist offered many cogent observations about the relationship between language and territory, he did not really unlock approaches to the accuracy of mapping such data. But he did note that with Native land tenure, numerous groups used boundary markers or identified natural features as part of their territory. He reported earlier observations about the importance of watersheds as boundaries, with peaks, ridges or summits serving as markers.[81] Geographers interested in various aspects of Indian geography owe a debt to the field work of ethnographers who secured useful environmental advice from Native informants.

Anthropologic and historic efforts at the mapping of Native America relied, of course, on official maps, and scholars turned to treaty data that unfortunately often provided erroneous or misleading information. The compendious compilation of treaty maps by C. C. Royce and his staff at the Bureau of American Ethnology in the 1890s translated treaty data, often conveying the same errors a step further. Yet this compilation on Indian land cessions represents a treasury of useful maps that even geographers have relied upon.[82] By the time the Indian Claims Commission was created to authorize litigation over tribal land claims, from 1946 to 1978, anthropologists had established the foundation for the cartography of Native America and early on they became closely associated with the litigation process.

Despite Kroeber's candid comments about the limitations of his tribal and cultural area maps, the importance of his delimitations of tribal areas led to their being borrowed for House Report 2503. This encyclopedic document appeared a few years after the Indian Claims Commission (ICC) got underway

and during the heyday of the termination policy in Indian Affairs. The report states that:

> The 77 tribal maps . . . are intended to show the present locations of individual tribes in conjunction with their original ranges. . . . The original range does not designate an area of absolute occupation by the individual tribe. Instead, it is used to indicate an area within which the tribe operated at one time. It is to be understood that in most cases the tribe actually occupied only a very small portion of the original range. . . . The original ranges are designed to indicate the areas in which the white settlers encountered the tribe in question during the period of actual occupation, not that of initial discovery.[83]

We should also point out that, somewhat in response to the land claims litigation, some anthropologists and historians who were asked to serve as expert witnesses participated in the formation of the Society for Ethnohistory, which led to the publication of the journal *Ethnohistory*. Subsequently, the scholarly efforts of several anthropologists were examined in terms of their utility to abet the maps that were legally required to illustrate the land losses as presented to the ICC. As geographers, we have to point out that our profession made only the smallest of contributions to the theory and practice behind expert testimony in the claims cases. But to what extent geography influenced anthropology depends on how one interprets the academic relationship of Kroeber and geographer Carl Sauer, both of whom worked at UCB and whose students crossed over in their studies of what used to be termed anthropogeography.[84] For example, one expert witness, Homer Aschmann, a geographer, hailed from UCB.[85] Anthropologist Omer Stewart was an important expert witness who significantly influenced by Sauer, as he expressed to Sutton in several phone calls in the early 1980s. His map for the reconstruction of Western Shoshone aboriginal territory reveals his strong geographical capacity.[86]

Of course, ethnographers, even more than historians, recognized that a very heavy burden fell on them and their ethnographic research methodology in order to ascertain the appropriate delimitation of tribal occupancy and use, and thus establish boundaries. Geographers certainly cannot—dare not—fault colleagues in these sister disciplines, but our discipline's relative lack of interest in the Indian and his past or present occupancy of the continent explains in part why so few geographers became contracted expert witnesses, and why today only a handful have explored Native American (now, indigenous) geography. Ultimately, we must acknowledge the productive contribution of anthropology to the reconstruction of Native American territoriality even if we find some of the earlier data questionable.

The federal government adapted Kroeber's culture areas in order to demonstrate the loss of territory graphically. This adaptation occurred despite the

fact that Kroeber clearly disqualified his maps as being political or territorial. The maps also show to what degree existing reservations lie within aboriginal areas that were ultimately litigated in the land claims process. Thus, it is not unexpected that other expert witnesses would encounter the government's "adoption" of the Kroeber renditions.

In recent decades, a volume of maps has been researched and designed by the chapter authors and cartographers of the fifteen published volumes of the *Handbook of North American Indians*.[87] Each culture volume had a regional "Key to Tribal Territories" map at the front with contact, territorial, and archeological site maps within. Additional maps of migrations and postcontact territories were also included as needed. Thematic volumes including *Indians in Contemporary Society* (vol. 2), *Environment, Origins and Population* (vol. 3), and *History of Indian-White Relations* (vol. 4), all had numerous maps covering a variety of topics. These maps included the activities of, migrations of, and interactions between and with North American Indians, as well as Euro-American policies toward Native Americans, and environmental determinants that affected them beyond their control. With the exception of the colored poster map (fig. 44) for *Languages* (vol. 17), all maps were produced in black and white.

Although none of the maps produced for the handbook series have had any direct effect on Indian affairs, one may safely assume that many have been used for reference by Native American scholars and others and continue to be. Indeed, the thoroughness of the handbook has made it a vital resource for anyone interested in studying Native North American societies.

Also in the last two decades, two special issues of the journal *Cartographica* (1993 and 2012) have published papers dealing specifically with cartographic issues and Native Americans. Robert A. Rundstrom edited the 1993 issue focusing on *Introducing Social and Cultural Cartography*, in which three of the articles separately discuss: "the roles cultural myths and map technology play in ongoing skirmishes over the meaning of land, language, and religion," using examples of Zuni, Hopi, and Cheyenne lands;[88] an illustration of the physical and social differences between three government maps and two peasant-drawn maps of localities near Lake Titicaca, Peru;[89] and a critical cartographic analysis of national *Indian Land Areas* maps produced by and for the BIA in 1971, 1987 and 1989.[90] Renee P. Louis, Jay T. Johnson, and Albertus H. Pramono edited the 2012 issue concerning *Indigenous Cartographies and Counter-Mapping*,[91] in which three of the articles separately present: indigital Geographic Information Networks (iGIN), which "is a neologism that describes an amalgamation of Indigenous, scientific, and technological knowledge systems" as demonstrated through "story-scapes, cartographic language, and Kiowa narratives";[92] the development of the online, interactive multimedia or cybercartographic Atlas of the Lake Huron Treaty that reflects "Anishinaabe

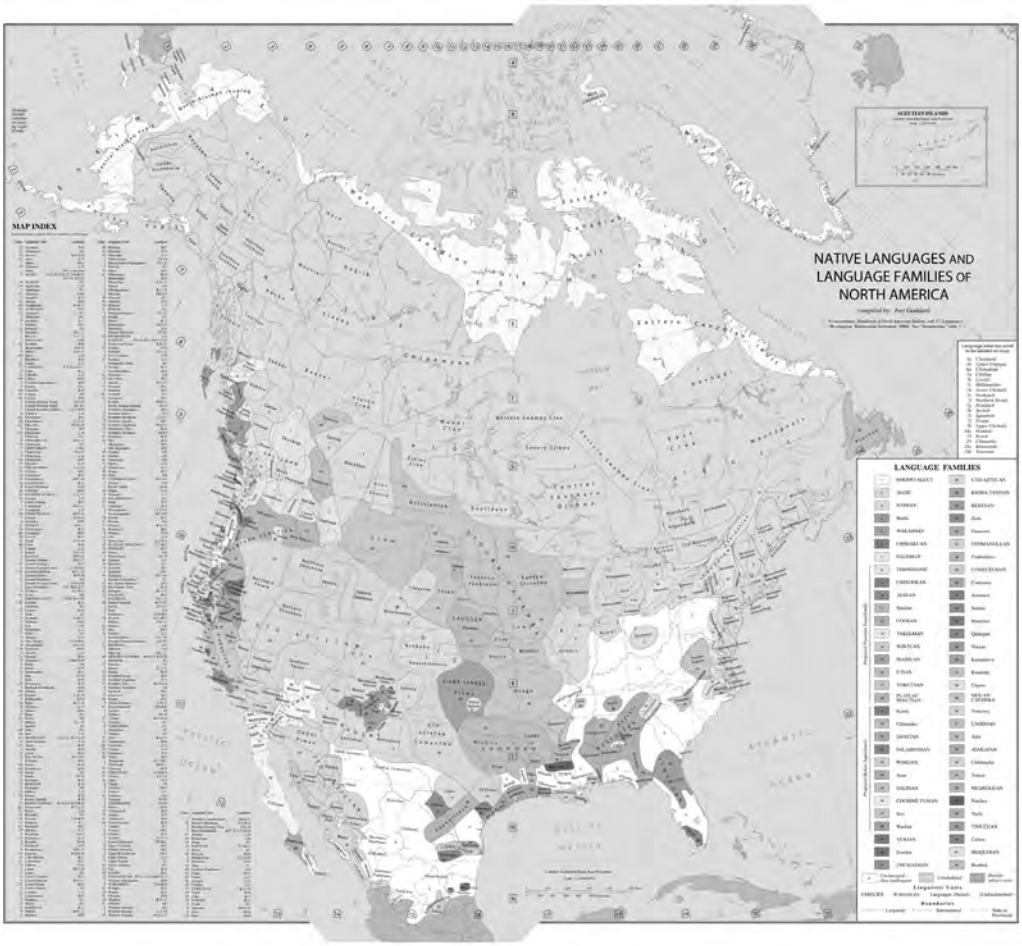


Figure 44. *Map by Ives Goddard*. Native Languages and Language Families. *Compiled for Languages, vol. 17 of the* Handbook of North American Indians *(Washington, DC: Smithsonian Institution, 1996).*

and critical academic perspectives";[93] and the analysis of dreams and dreaming practices "in the framework of participatory mapping projects conducted with Indigenous communities or organizations" in Chile.[94]

Modern Tribal Cartographic Goals

When we turn to tribal purposes and goals, one might immediately contend that the tribes seek restoration and hence correction of cartographic misdeeds, errors, and the like, and that a restored database would assist them in determining their priorities in resource management and/or co-management. Regardless, it is not possible, of course, to return to an aboriginal world and begin to map anew.

One example of an original map defined by a Native American tribe is that of Hopitutskwa (fig. 45).

Tutskwa means "land" in the Hopi language, so Hopitutskwa means "Hopi land." The geographical extent of Hopitutskwa is contingent upon the context in which it

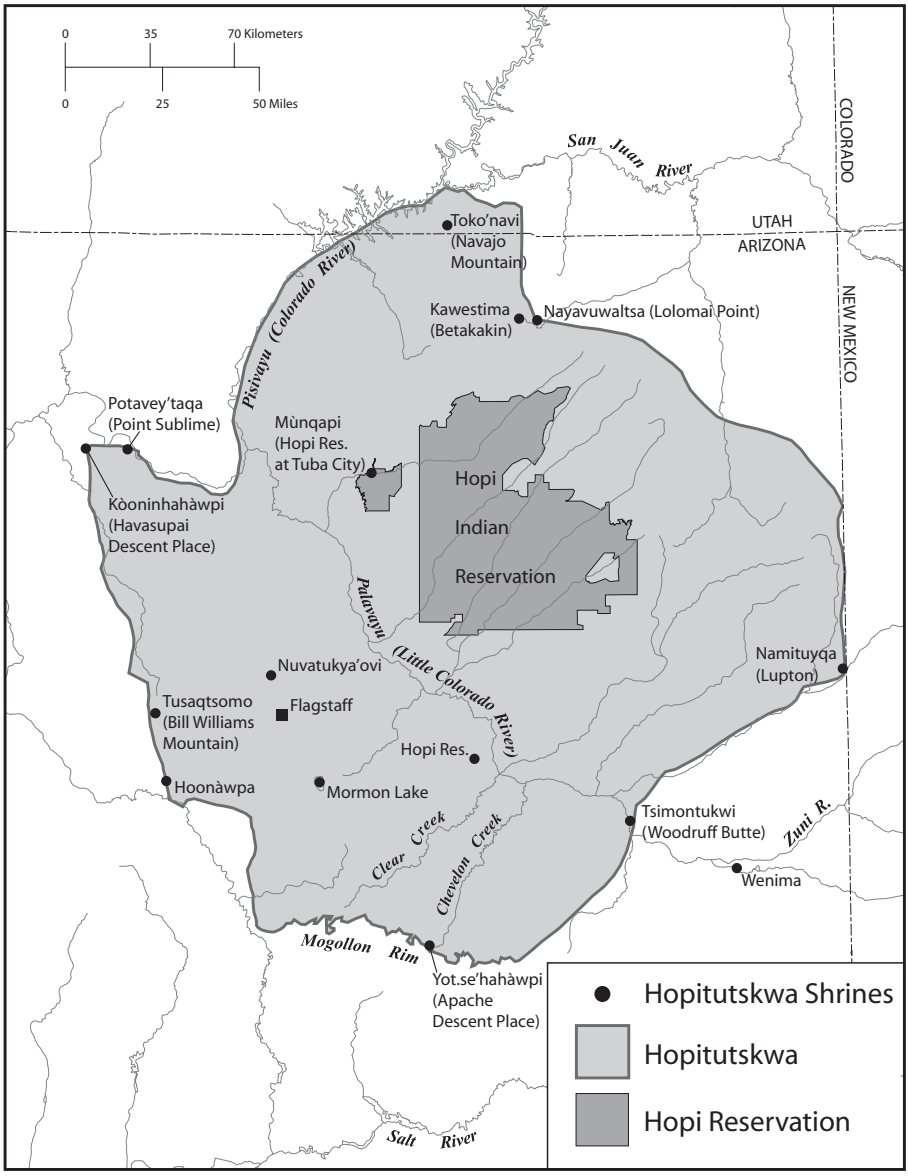


Figure 45. *Map by Daniel Cole.* Hopitutskwa or Hopi land, with the present-day reservation boundaries illustrated. *Compiled for Leigh Kuwanwisiwma and T. J. Ferguson.*

is referenced in oral discourse and maps. The concept variously invokes all the land ever occupied by the Hopi people, a circumscribed geo-political boundary articulated in relation to land claims, and a homvi'ikya or pilgrimage route connecting a series of shrines used to pay homage to a larger land base. All of these conceptions have cultural and historical validity, and all need to be taken into consideration when using cartographic representations of Hopitutskwa.[95]

In dealing with the hard reality of the allotment system, as part of the Lakota Lands Recovery Project, the Village Earth organization recently created a new resource for Lakota landowners that makes allotment maps accessible to the people of Pine Ridge Reservation. The Pine Ridge Land Information System (PRLIS) includes spatial data layers on original allotments, district boundaries, parcels, range units, 1851 and 1868 treaty boundaries, USGS well tests from the mid-1990s, the Badlands Bombing Range, and a three-mile growth buffer for planning purposes. The PRLIS allows Pine Ridge residents to conduct the following activities:

- Search for individually allotted and Tribal-owned trust lands using the Tract ID found on their government land reports.
- View, print and share a web link for the boundaries of specific land tracts.
- View Pine Ridge lands with various base layers including Google and Bing aerial photography, Google and Bing roads, Google and Bing Hybrid, and terrain.
- View a Landsat TM Image which can be used to assess the management and of lands on Pine Ridge.
- View a map of the Range Units that are leased across Pine Ridge.
- View the boundaries of the Reservation today and as defined in the 1851 and 1868 Treaties.[96]

A Composite View

Land claims have proven to be a cartographic arena in which tribal, governmental, and academic efforts have intermixed, overlapped, and otherwise been explored in multiple ways. One might contend that the adjudicated map of tribal territory is the "final" legal cartography of Indian territoriality, but it is flawed and many tribes contest its findings. And, indeed, it may no longer be possible to reconstruct indigenous America via maps, and thus cartographic compromise is frequently a contemporary reality.

One question is of long-term federal policy regarding which set of maps will serve, for example, in matters involving co-management of former tribal territory, much of which lies within final adjudicated boundaries for which the Indian Claims Commission (ICC) awarded financial remuneration. Figure 46

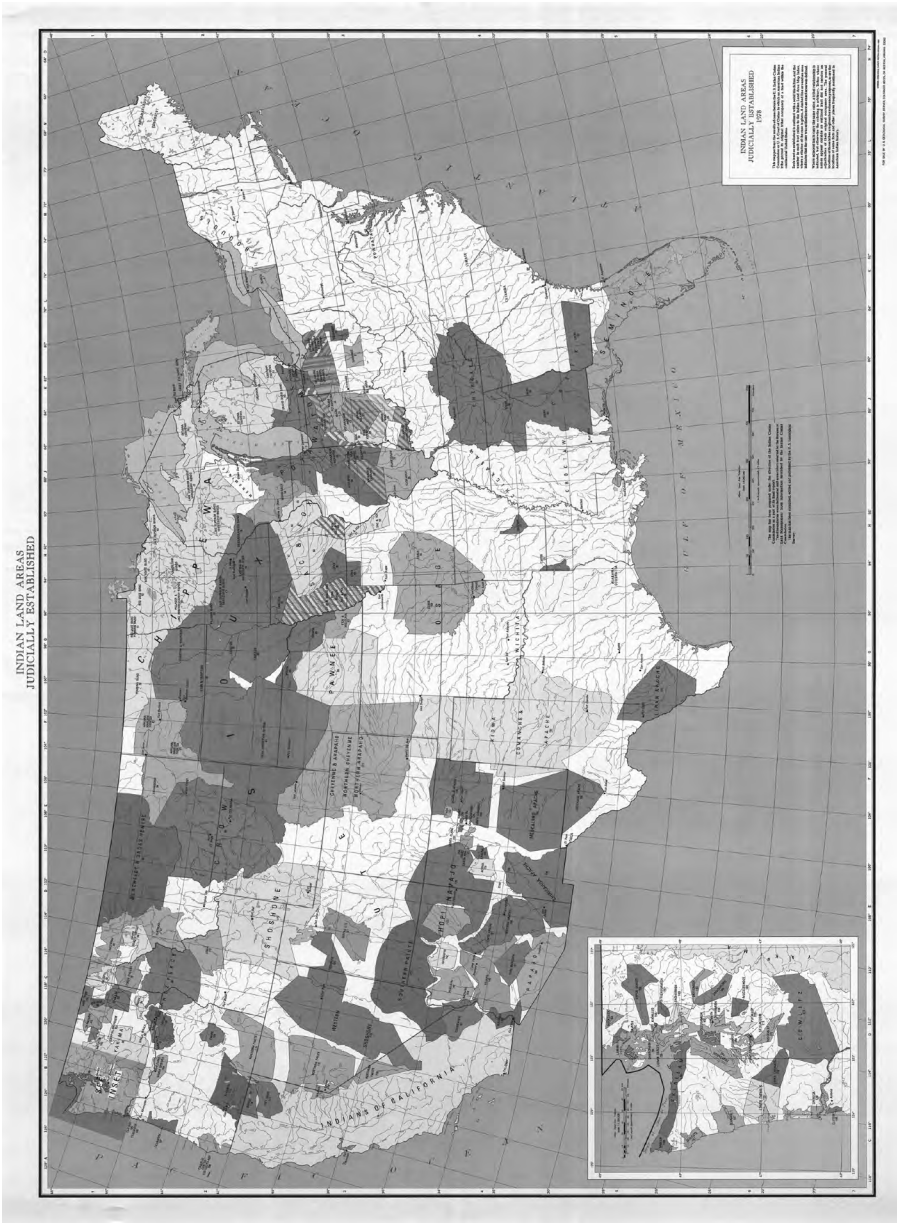


Figure 46. *Cartographer unknown.* Indian Land Areas Judicially Established, 1978. *US Geological Survey, 1993, http://rockyweb.cr.usgs.gov/outreach/lewisclark/indianlandsmaps.html.*

illustrates the areas of cases adjudicated before the ICC. Tribes themselves have selectively expressed concern about cartographically reporting sacred sites and other cultural places because of the potential threats of touristic impact, deliberate vandalism, and other encroachments.

Representative of indigenous-based maps that have played a role in the delimitation, management, and litigation of tribal lands is a map by the Nez Perce tribe of Idaho. As with many tribes today, the Nez Perce have established a functioning map and GIS division, so regularly produce their own maps. The Nez Perce once claimed parts of Washington, Oregon, Idaho, Montana, and Wyoming and now occupy a fairly small reservation of 750,000 acres, of which more than 80 percent is held by non-Indians.[97] Figure 47 is a tribally developed and printed map by the Land Services GIS Division of the Nez Perce Department of Natural Resource that reveals the current reservation and former tribal territory, including the adjudicated area rendered by the ICC. The tribe cultivates nearly 38,000 acres in crops, especially wheat, but also barley, peas, alfalfa and hay. Because the tribe has sustained ownership of more than 40,000 acres of timber, it maintains a sustainable harvest program and has also revived the Appaloosa horse breed. This map reflects tribal land-tenure history by presenting the past and present of their territoriality based on tradition, federal management, and litigation. The historic boundaries remind us of treaties and statues and the ICC boundary. There is considerable similarity between this map and that reconstructed by Walker; the latter produces one total area that embraces the multiple areas on the tribal map.[98] Note how many culturally significant locations, such as sacred sites, lie outside the boundaries of the current reservation—a fairly typical reality in Indian country. These sites are mapped because of the interaction of land agencies (Forest Service and National Park Service) and the tribe; other culture sites remain unmapped. As outlined in the treaty of 1855, the Nez Perce continue to hunt, fish and gather west to the Columbia River, south to the Upper Salmon river watershed, and east into Montana. Over some of this vast former territory, not restored in litigation before the ICC, the tribe serves as co-manager of water, timber, and mineral resources.[99] Note that several, but perhaps not all, tribal culture sites are today protected by being part of the Nez Perce National Historic Trail.

States and Tribal Lands

Expanding on the legal cartography of Indian country, consider that states and tribes have not generally been perceived as friends. Thus, how states regard their tribal citizens and trust lands is provocative and instructive. Questions we might ask include: Is the presence, absence, or modification of reservation data on official state maps a political/legal or even extra-legal statement? Does

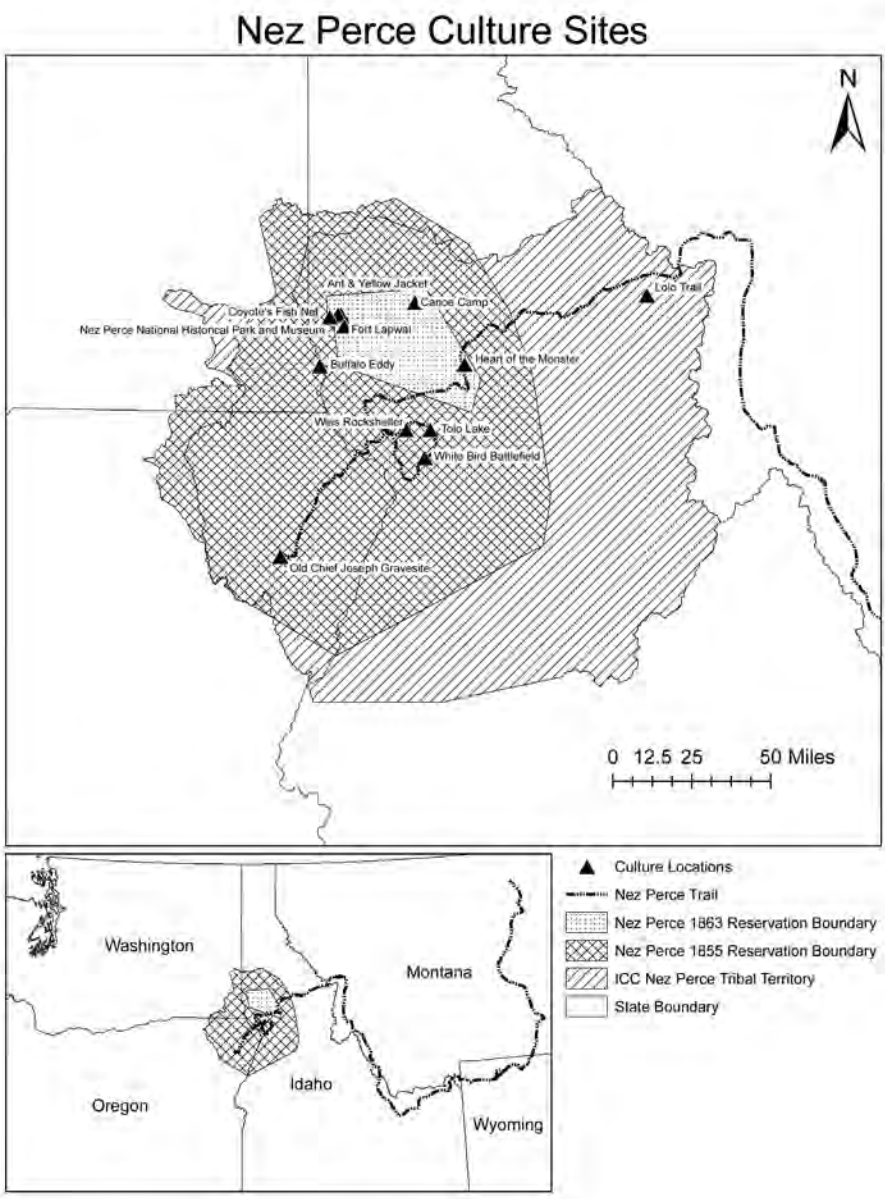


Figure 47. *Map by Jane McAtty.* Nez Perce Culture Sites. *Land Services GIS Division of the Nez Perce Natural Resource Department, 2011.*

the mapping reflect the fact that thirty-nine states have offices or commissions on Indian affairs, and forty-two states have been acknowledging their resident tribes? Keep in mind that in Indian country there is tripartite government: federal, state, and tribal.

Let's consider a few examples of how states represent Indian country. Note that cartographic data for any one state could change from time to time. Figure 48 shows how official state cartographic identification of Indian trust lands within their border ranges from all trust lands shown to none, with many variables in between. A few states (South Dakota, for instance) show diminished reservation boundaries when statutes and judicial decisions are confused. Almost all the Intermontane and Pacific Coast states report reservations on their official state maps, which encompass the majority of trust lands. Eastern states, which include "state-recognized" reservations, may or may not report such locales. Neither Rhode Island nor Maine show reservations. Virginia includes resident tribes, but merely identifies them by symbol and place-name. Of Plains states, South Dakota and Oklahoma depart from the general practice of reporting the total number of Indian lands. South Dakota consistently chooses to interpret the diminishment of tribal boundaries as much as a century ago as meaning either the disestablishment or disappearance of given reservations (such as the Sisseton and Yankton) or the geographic reduction of others (such as the Rosebud and Pine Ridge (Oglala)). South Dakota does display a "Great Sioux Nation" visitor's guide that includes a map of all the reservations. The tribes have participated collectively in the preparation of that map and guide. Oklahoma does not always include any tribal lands on its official state map. In the past it acknowledged the Osage Indian Reservation; however, an inset map on the 2006 official highway map shows "Indian Territory 1866–1889," delimiting the major tribal areas. Consulting the main map, one may comprehend the absence of all but the Osage I. R. (Indian Reservation), the only one treated as an active tribal reservation by the BIA. Because controversy persists over the status of the other tribal areas, trust lands are designated for census purposes as Tribal Jurisdiction Statistical Areas.

The presence or absence of Indian reservations on state maps does not necessarily indicate or even suggest a specific political or legal posture between state governments and the tribes. One can only assume that states placing trust lands on official maps want to inform visitors who might consider tribal lands a tourist attraction. And one should not overlook Indian gaming, although residents and visitors to California would need to turn to other maps to locate tribal casinos. Also, a few states choose to exclude tribal lands when the legal history of the land status is in conflict. These and other potential state actions lead interested scholars, students, and the general public to look elsewhere for advice about Indians and territory in any given state.

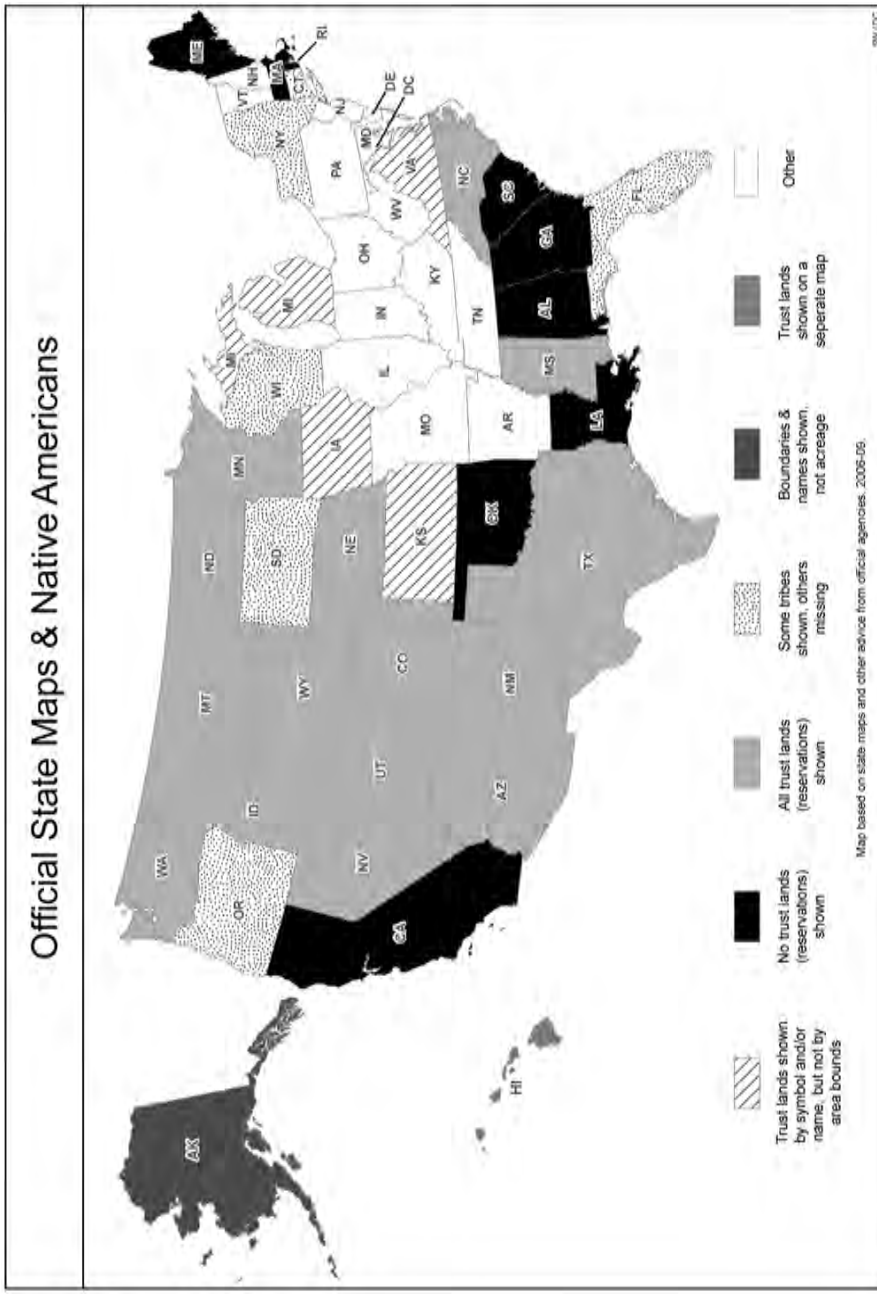


Figure 48. *Map by Imre Sutton*. Official State Maps & Native Americans, 2006–2009.

Some Closing Thoughts

In light of the diverse perspectives and objectives of government, academia, and the tribes, readers should consider today that the legal cartography of Indian Affairs has, in many ways, gone beyond the legal definition of Indian country. For example, it is appropriate to reach out to local communities—municipalities, counties, or even an entire state, to provide the appropriate maps that focus on the political and legal concerns involved. Note that entire states are parties to the National Indian Gaming Act; thus, the state becomes part of the mapping of tribal gaming. In 2009, there were 423 gaming facilities operated by 230 tribes in 29 states. Tribal income has been in the billions nationally and tribes have employed nearly 350,000 people. Figure 49 depicts gaming facilities shown as dark dots versus those depicted as light dots, the latter of which are within counties of more than 200,000 people and close to interstate highways, corresponding with the most profitable locations.[100]

At one level are the Class I and II gaming facilities located throughout the country, versus the multimillion-dollar casinos owned by the Seminole in Florida, the Pequot at Foxwoods in Connecticut, the Oneida at Turning Stone in New York, and others in Southern California. The Indian Gaming Regulatory Act (1988) established the rules for the operation and regulation of Indian gaming. Class I gaming consists of traditional tribal games and "social games" for prizes of nominal value, all of which are subject solely to tribal regulations. Class II gaming consists of bingo, instant bingo, lotto, punch cards, pull tabs (if played in the same location as bingo), and manual card games legal anywhere in the state and not played against the house (non-banked games). Class II is regulated by both the NIGC and the tribes. A tribe may conduct or license Class II gaming if it occurs in "a state that permits such gaming for any purpose or by any person" and is not prohibited by federal law. A Class II gaming machine is the only type of slot machine available in Oklahoma. Class II machines are connected to a system controller and are sometimes equated with a "bingo slot," whereas Class III slot machines are found in Las Vegas and use a random-number generator to determine their results. Class III gaming consists of card games against the house, slot machines, dog and horse racing, jai alai, and all other types of casino gaming. The NIGC authority includes review and approval of Class III gaming management contracts. Class III gaming is regulated by compacts between the tribes and the states.

An interesting and quite complex geolegal facet of Indian gaming concerns efforts to establish, under what is often called "portable jurisdiction," a casino on lands to be acquired beyond a reservation. The Indian Gaming Regulatory Act (IGRA) demands considerable proof that the tribe can demonstrate a former connection to the land—that is, historical territoriality that is reported

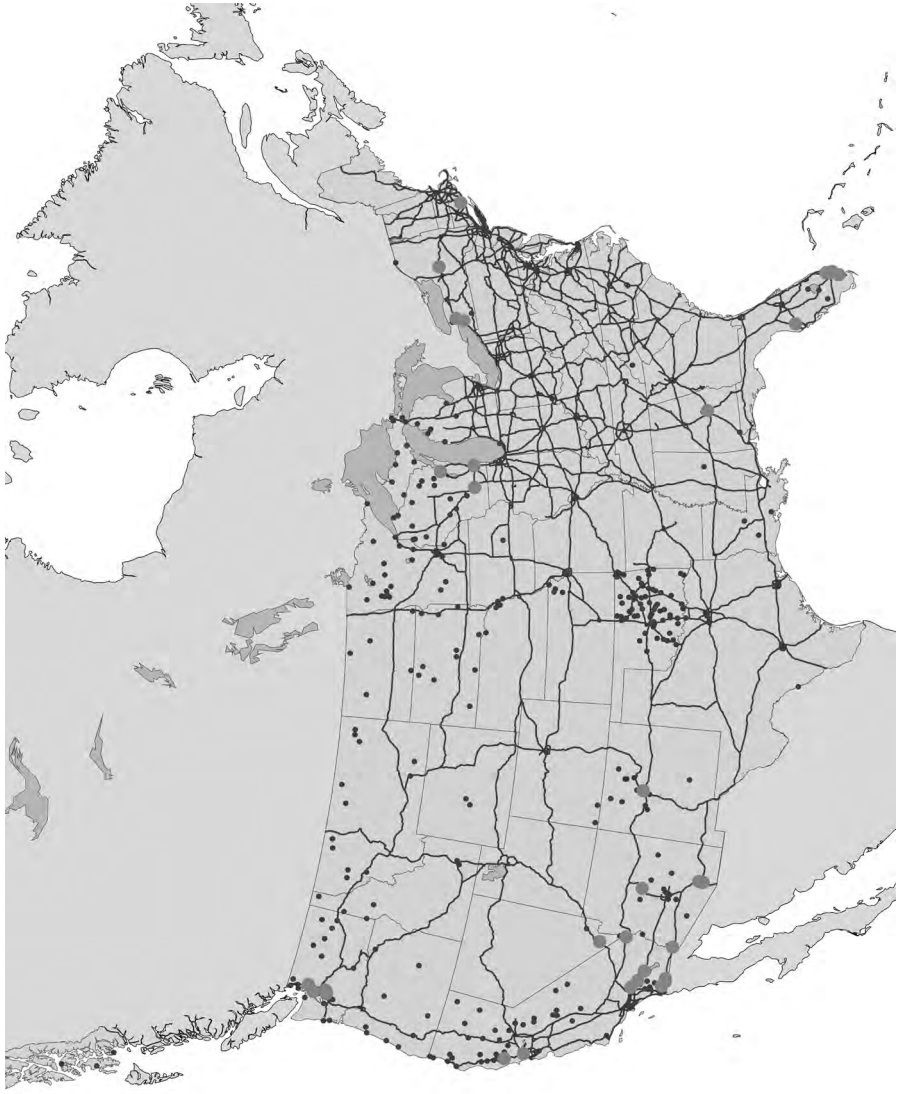


Figure 49. *Map by Daniel Cole.* Indian Gaming Operations by zip code, 2009.

cartographically and/or by treaty. The land must be within twenty-five miles of the reservation and hence within reasonable commuting distance for a tribe to be fully managing the parcel. Recently, the Guidiville Band of Pomo Indians of Northern California had sought trust status for a parcel deemed outside their historic territory by reference to multiple sources, including a Royce map, of unratified treaties dating back to 1851 (fig. 50). Tribal data were found lacking in sufficient evidence of their historic connection to Point Molate on the south side of San Pablo Bay on lands within the city of Richmond.[101]

Other examples of tribes seeking better locations for a casino outside their historic territory and far more than twenty-five miles from their home reservation include the Big Lagoon Rancheria in upstate California and the Los Coyotes Band located in eastern San Diego County. Neither tribal group can justify a claim to inhabiting the area historically; both fall far short of the requirements of IGRA. Even the Chemehuevi, who have a casino at the

Figure 50. *Map by Charles C. Royce.* Close-up of map #7 (California 1) *from Royce, 1899.*

Colorado River Reservation, claim the historic occupation of the area west to include Barstow, the site for a planned casino district, but much too far to administer a casino. And recently, the Jemez in New Mexico were denied trust status which they had sought in order to establish a casino outside of their reservation boundaries.

> The Tribe sought to acquire land off of its reservation, in this case, quite a distance from its reservation. The land currently is owned in fee status. If taken into trust, the Tribe acquires jurisdiction and governmental authority over the land. In this case, since the distance was so great, the Tribe contracted out most of its governmental authority to the local governments. The Assistant Secretary rejected this attempt by the Tribe to transport its jurisdiction and out-source it in this manner.[102]

Other land issues may not necessarily involve Indian gaming, although non-Indian neighbors—counties, towns, individual residents—may question the intent to acquire more land and seek trust status. That status, of course, removes the property from local jurisdiction. To serve effectively as examples would require orientation maps relative to the current locations of reservations. Hence, a need exists for a generalized state of California map showing such for the Big Lagoon, Los Coyotes, and the Guidiville Pomo peoples. At times, the distinction has to do with the land in question being part of historic territory adjudicated by the ICC.

Tribes interact at the local level with school districts, which also extends the extra-legal boundary of Indian country. The same may be said of health services, law enforcement, fire service, and other environmental situations. Figure 51 illustrates Indian Health Service boundaries together with the locations of health centers, health stations, and hospitals throughout Indian and Alaskan Native country. A number of federal agencies (National Park Service, Bureau of Land Management, US Forest Service, Department of Defense, and so forth) have Indian Liaison Offices that produce maps depicting their interactions with Indian country. Of course, tribes are not only concerned about the articulation of reservation boundaries on paper but also the cartographic intent of internal bounds of allotted lands, especially those lands no longer in Indian ownership but still having some degree of Indian involvement. Land consolidation programs must turn to maps as key tools in the management of purchase, development, and programs by tribes.

In sum, the mapping of Native American lands, resources, and activities has been and will continue to be a dynamic activity. However, the complexity of the American Indian landscape may or may not be represented on past and current maps. Map readers must understand that the lands and the resources therein are not static; thus tribes, as well as the general public, should be

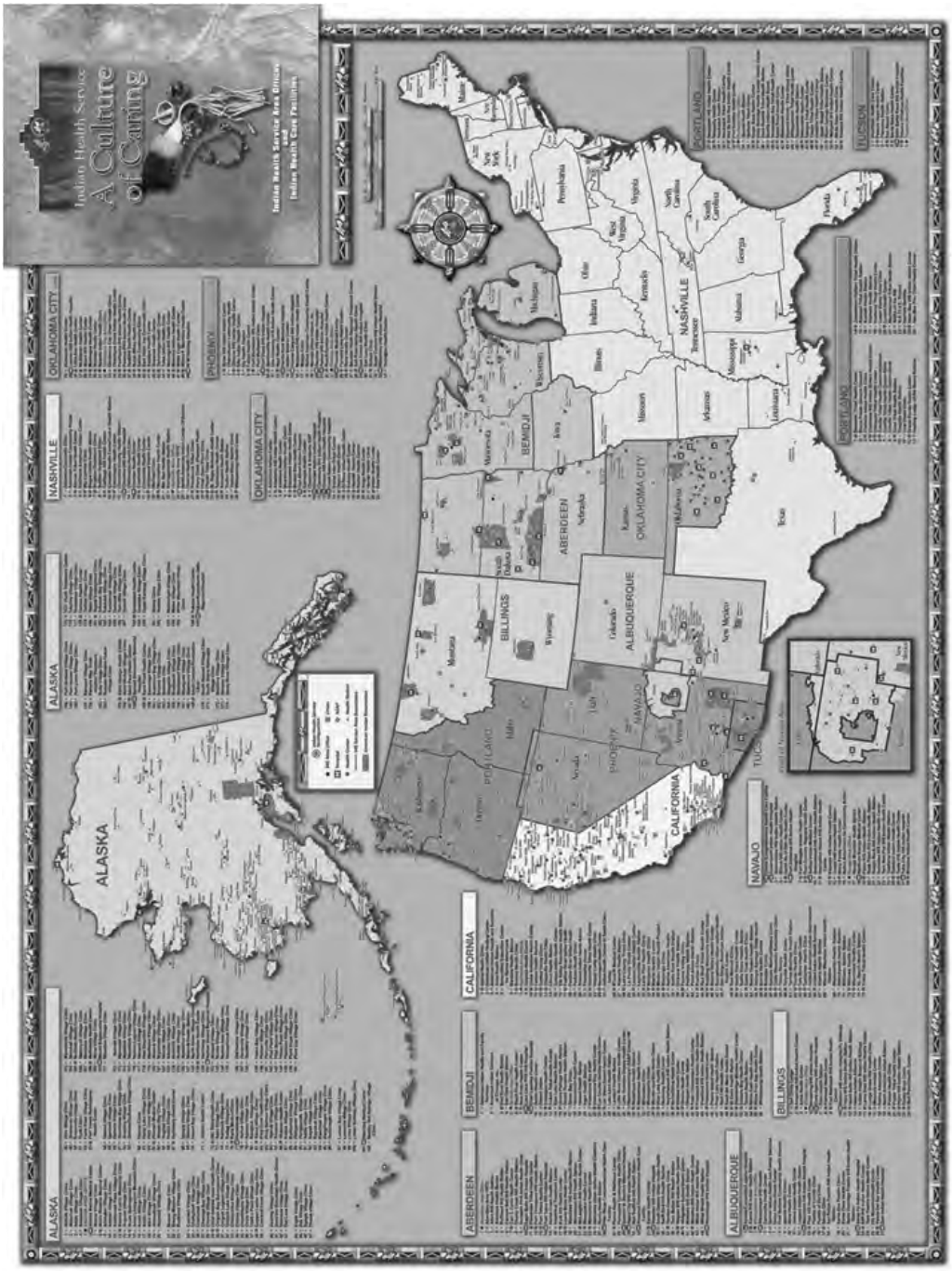


Figure 51. *Map by the Indian Health Service.* Indian Health Service, A Culture of Caring: Indian Health Service Area Offices and Indian Health Care Facilities. *An interactive map based on current data is available at* https://mapapp.ihs.gov/mox6/.

able to see and interact with these maps and geospatial data to learn better how to manage those lands that are currently in their possession, as well as co-managing parcels with various government agencies reserved for traditional resource use. Furthermore, the availability of historic and present-day maps allows for possible litigation or acquisition of those lands previously lost through cartographic chicanery and errors.

Notes

A version of this paper was presented at the Federal Bar Association's Indian Law Conference: *Mapping Indian Law and Policy*, Pojoaque, New Mexico, April 2012. For more internet links and color versions of some of the maps in this article, contact Dan Cole (cole@si.edu).

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