Enumeration Study of Hispanic Forest Landowners in the United States

COMMISSIONED BY THE U.S. ENDOWMENT FOR FORESTRY AND COMMUNITIES

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Acronyms and Descriptions

ACEP: Agricultural Conservation Easement Program ACEP is an NRCS program that helps landowners, land trusts, and other entities protect, restore, and enhance wetlands and protects working farms and ranches through conservation easements.

CSP: Conservation Stewardship Program The Conservation Stewardship Program is an NRCS program that offers technical and financial assistance to help agricultural and forest producers. The program is designed to compensate agricultural and forest producers who agree to increase their level of conservation by adopting additional conservation activities and maintaining their baseline level of conservation.

EQIP: Environmental Quality Incentives Program The Environmental Quality Incentives Program is an NRCS program that provides financial and technical assistance to agricultural producers and non-industrial forest managers to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, increased soil health and reduced soil erosion and sedimentation, improved or created wildlife habitat, and mitigation against drought and increasing weather volatility.

FFO: Family Forest Owner (Definition: families, individuals, trusts, estates, family partnerships, and other unincorporated groups of individuals that own forest land. This group is a subset of nonindustrial private forest owners. *Source*: B. Butler, Family Forest Owners of the United States, 2006).

FIA: Forest Inventory and Analysis FIA reports on status and trends in: forest area and location; in the species, size, and health of trees; in total tree growth, mortality, and removals by harvest; in wood production and utilization rates by various products; and in forest land ownership.

FLA: Forest Landowners Association The Forest Landowners Association is the national representative of the economic interests of family forest landowners and their unique natural resource assets. FLA represents forest landowners and their economic interests at the national level regardless of size, corporate structure, location, certification status, or tax classification.

GCI: Grassland Conservation Initiative. GCI is a conservation activity that assists participants in maintaining land enrolled in the initiative in permanent vegetative cover to meet or exceed at least one of the following priority resource concerns: Soil Erosion, Soil Quality Degradation, Water Quality Degradation, Fish and Wildlife Habitat Improvement, Air Quality Impacts, Degraded Plant Condition, and/or Livestock Production Limitation.

MRLC: Multi-Resolution Land Characteristics Consortium The MRLC consortium is a group of federal agencies that coordinate and generate consistent and relevant land cover information on a national scale for a wide variety of environmental, land management, and modeling applications. The creation of this consortium has resulted in the mapping of the lower 48 United States, Hawaii, Alaska, and Puerto Rico, into a comprehensive land cover product termed the National Land Cover Database (NLCD), from decadal Landsat satellite imagery and other supplementary data sets.

NACD: National Association of Conservation Districts The NACD is the 501(c)(3) nonprofit organization that represents America's 3,000 conservation districts and the 17,000 men and women who serve on their governing boards. Conservation districts are local units of government established under state law to carry out natural resource management programs at the local level. Districts work with millions of cooperating

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landowners and operators to help them manage and protect land and water resources on private and public lands in the United States.

NAFO: National Alliance of Forest Owners The NAFO is a national advocacy organization committed to advancing federal policies that ensure our working forests provide clean air, clean water, wildlife habitats and jobs through sustainable practices and strong markets. NAFO member companies own and manage more than 46 million acres of private working forests – forests that are managed to provide a steady supply of timber.

NASDA: National Association of State Departments of Agriculture NASDA is a nonpartisan, nonprofit association that represents the elected and appointed commissioners, secretaries, and directors of the departments of agriculture in all 50 states and four U.S. territories.

NLCD: National Land Coverage Database NLCD is the definitive land cover database for the United States. It is updated every five years and is created and maintained by Earth Resources Observation and Science (EROS), a federal science center operated by the U.S. Geological Survey. Since 1972, EROS has worked on mapping, monitoring, and analyzing land change across our nation and worldwide. EROS is central to creating NLCD, which is generated in cooperation with the Multi-Resolution Land Characteristics Consortium (MRLC), a partnership of Federal agencies working together to produce current, nationally consistent land cover products for all 50 states and Puerto Rico.

NRCS: Natural Resources Conservation Service NRCS is a USDA agency helping America's farmers, ranchers and forest landowners conserve the nation's soil, water, air, and other natural resources. All programs are voluntary and offer science-based solutions that benefit both the landowner and the environment.

NWOS: National Woodland Owner Survey The USDA Forest Service's National Woodland Owner Survey is a survey of the individuals and private companies and organizations that own nearly two-thirds of the forest and woodland across the U.S.

RCPP: Regional Conservation Partnership Program. The RCPP promotes coordination of NRCS conservation activities with partners that offer value-added contributions to expand our collective ability to address on-farm, watershed, and regional natural resource concerns.

INTRODUCTION/OVERVIEW

Despite increasing attention to diversity in forestry, there have been no national studies of racial and ethnic minority family forest owners in the United States. As a result, there is a lesser understanding of minority family forest ownership on the federal level, including demographics, attitudes, and behaviors. In addition, most programs and policies have focused on facts about nonminority family forest owners. A better understanding of minority family forest owners on a national level will provide the basic knowledge needed to design and implement federal programs supporting this population segment.

This enumeration study follows earlier investments by the National Endowment for Forest and Communities (Endowment) in learning how land is culturally significant to minority groups and how to develop strategies and effective outreach to foster better rural development practices. In 2012, in partnership with the Natural Resources Conservation Service (NRCS) and the Forest Service, the Endowment launched the Sustainable Forestry and African American Land Retention Network (SFLR). The goal was to help landowners address heirs' property and land retention issues and understand the value of responsibly managing forest land. This study focuses on determining the number of Hispanic Forest landowners in the United States as the first step in creating future opportunities to organize educational and network efforts that advance forest health and invigorate forest-rich communities among Hispanic Forest landowners.

The objectives of Hispanic Forest Landowners enumeration study are:
1. To determine the number of Hispanic Forest landowners across the United States, including Puerto Rico.
2. To identify and evaluate reliable data sources (county, state, and federal levels) to establish the most accurate estimates of Hispanic Forest landowners for each state in the U.S.
3. To identify and interview experts and professionals with insightful information to validate information and sources, as well as to gain general understanding about Hispanic Forest landowners.

The enumeration study plan included a collection of secondary sources of data and a qualitative survey to support study conclusions and findings. The following sections will describe and present a diverse set of secondary sources, including local, state, and national estimates, trends, and projections. A crucial step in the secondary data collection was to accurately identify and assess the available data sources' reliability to classify family forest owners' ethnicity. The study used a combination of techniques and the most current data available to establish correct predictions. Based on our experience with minority data collection and leading outreach efforts in Hispanic communities, we never take for granted that data sources are always accurate. At every level of analysis, the team will trust and always verify numbers found.

Note: The terms Latino and Hispanic are used interchangeably throughout this document. "*Hispanic, Latino or Latinx*" refers to a person of Cuban, Mexican, Puerto Rican, South or Central American origin, or other Spanish culture or origin, regardless of race (U.S. Census Bureau).

LITERATURE REVIEW

One of the driving questions of the study has been, "Is there any data that explicitly connects forestland ownership and ethnicity?" A deeper search into this topic reveals that data sources and research studies are limited. There is no index of Hispanic Forest Landowners (HFLOs) that experts or research offers regarding forest landowners. The numerous indicators and sources used in the study are helpful and do not present the whole or complete picture. The incomplete findings will need to be verified through physical outreach in a phase two investigation.

This website and literature review section details the unique resources used in the supportive research for this project. Conducting a literature review was essential for developing a research hypothesis, ultimately our predictable model. In addition, knowing and grouping information about different themes and subjects enabled us to identify knowledge gaps and further understand the limitations of enumerating HFLOs.

First, the content and purpose of each resource or data source studied is explained. Next, the entries share relevant information on how this resource was to shape this study. Additionally, analysis and evaluation of the resource's relevancy and utility is included at the end of the section. All the entries included in this website and literature review section were critical in shaping the direction and effectively the findings of this study. Finally, this section contributes to satisfying one of the study objectives: identifying and evaluating reliable data sources (county, state, and federal levels) that establish the most accurate estimates of Hispanic Forest landowners for each state in the U.S.

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Forest Inventory and Analysis

The Forest Inventory and Analysis (FIA) Program of the U.S. Forest Service reports on status and trends in: forest area and location; in the species, size, and health of trees; in total tree growth, mortality, and removals by harvest; in wood production and utilization rates by various products; and forest land ownership. The long history of scientifically credible FIA data provides critical status and trend information to resource managers, policymakers, investors, and the public through a system of annual resource inventory that covers both public and private forest lands across the United States. The yearly inventory has expanded to become an annual survey managed by the Research and Development organization within the USDA Forest Service in cooperation with State and private Forestry and National Forest Systems.

The data provided by the FIA is foundational to this study, as it offers current and specific resources on the status of forest land ownership across the nation. We received **FIA Indicator 45 data** for all states; this indicator gives the number of private forest landowner plots sampled for the FIA study. However, it does not provide an exact number of private forest landowners in a county. Additionally, there is minimal information as to ownership characteristics. FIA Data Tools utilized include state-specific fact sheets (see Figure 1 for an example), which aided in our primary and secondary data collection methodologies.

The USFS Northern Research Station: Forest Inventory & Analysis (NRS-FIA) offers estimates of forest land and timberland by county, which can be viewed using ArcGIS; data is available to the public for states and counties using 2012 and 2016 data. Data was collected for all counties and included in the study to correlate the percentage of forest land and timberland to other indicators collected. Figures 2 and 3 provide a screenshot of the ArcGIS feature layer; each is hyperlinked to the source.

Figure 1: FIA: State Specific Fact Sheet (2019)

Figure 2: FIA Annual County Estimates: Forest Land and Timberland (2016)

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Figure 3: FIA Annual County Estimates: Forest Land and Timber Land (2012)

Multi-Resolution Land Characteristics Consortium (MRLC): Tree Canopy Cover (2016)

This inventory was one of the first data sets identified and used by mano-Y-ola. It is an interactive forest coverage map created by the Multi-Resolution Land Characteristics Consortium (MRLC) using the National Land Coverage Database (NLCD) data of 2016. Data is available for the United States and Puerto Rico. This data set contains percentage tree canopy estimates as a continuous variable for each pixel across all land covers and types generated by the United States Forest Service (USFS). The USFS derives tree canopy cover from multi-spectral Landsat Imagery and other available resources. The density of canopy is indicated by darker green areas and gives an idea of where the tree canopy is the densest.

This particular data set accounts for tree canopy cover only and not necessarily contiguous forests. For this reason, this enumeration study used this source to give us county-level forestry cover percentages and acreages, helping us to visualize forested areas. One of the weaknesses of this data set is that it does not distinguish between government-owned forest and privately owned forest lands. It is only possible to view one political boundary at a time. Additionally, the data is represented spatially, making it difficult to compare with other quantitative data sets (Figure 4).
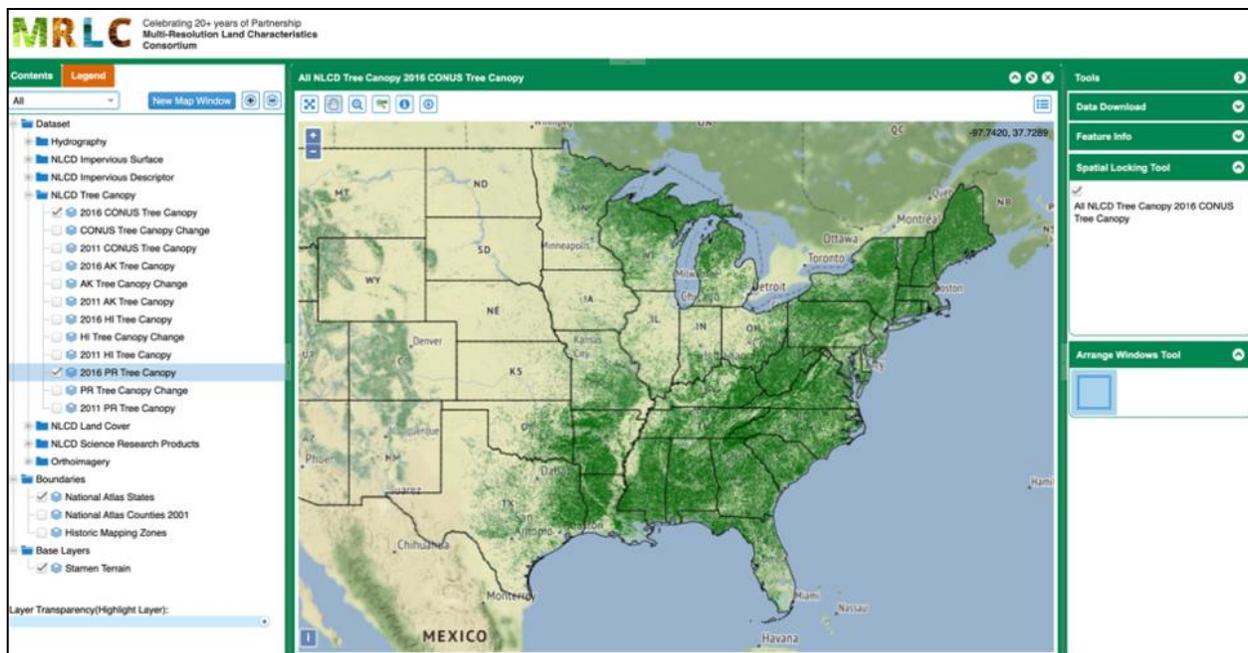
Figure 4: MRLC: Tree Canopy Cover (2016)

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National Woodland Owner Survey (NWOS)

The National Woodland Owner Survey (NWOS) is conducted by the Forest Inventory and Analysis program to collect information on America's private forest ownerships' attitudes, behaviors, and other characteristics. This report provides documentation and results from the 2017-2018 iteration of the NWOS, which is referenced by the terminal year, 2018. The particular focus of the results in this report is family forest owners with 10+ acres of forest land.

Summary tables, survey instrument and other documents used in the study: https://usfs-public.app.box.com/v/NRS-GTR-199-Supplemental

Researchers using the NWOS acknowledge many of the limitations of the survey results when it comes to measuring characteristics of minority forest owners. According to S. Butler, J. Schelhas and B. Butler, "*although examining minority landowners using the NWOS data is an essential first step in understanding traditionally underserved FFOs on a national level, this study has some limitations that warrant future research.*"[i] Among the limitations listed:

a) The sample size of the minority Forest Family Owners (FFOs) is small.
b) The low-minority FFO sample sizes of the current iterations of the NWOS make it impossible to examine specific races or ethnicities separately.
c) Researchers are not clear if the small sample size is due to low cooperation rates of minority FFOs or if landownership is low among minority FFOs; or possibly that both reasons account for the low participation of minority FFOs.

Another potential issue is nonresponse bias. For example, if minority nonrespondents are substantially different from minority respondents, our understanding of minority FFOs may be biased.

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Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Literature Review
U.S. Forest Service: Forest Ownership Map of the Conterminous United States

U.S. Forest Service: Forest Ownership Map of the Conterminous United States

This publication from the U.S. Forest Service confirms that nearly two-thirds of the forests of the contiguous U.S. are privately owned. It is represented on a map (Distribution of Six Forest Ownership Types in the Conterminous United States) in Figure 5 seen below, where various forest ownership types are designated. The data includes three types of public ownership: federal, state, and local, and three types of private ownership: family (contains individuals and families), corporate, and other private (has conservation and natural resource organizations unincorporated partnerships and associations, and Native American tribal lands).

Our study utilized this map as a starting point for identifying pockets of privately held forest lands and their distribution across the map. It allowed us to narrow down specific regions and areas within the states we identified as particular interests and acted as a point of reference when completing primary research methodologies such as interviews with state conservationists. In addition, this map has led us to seek FIA plot data from the Forest Service to get a closer look at these pockets of private forest landowners.
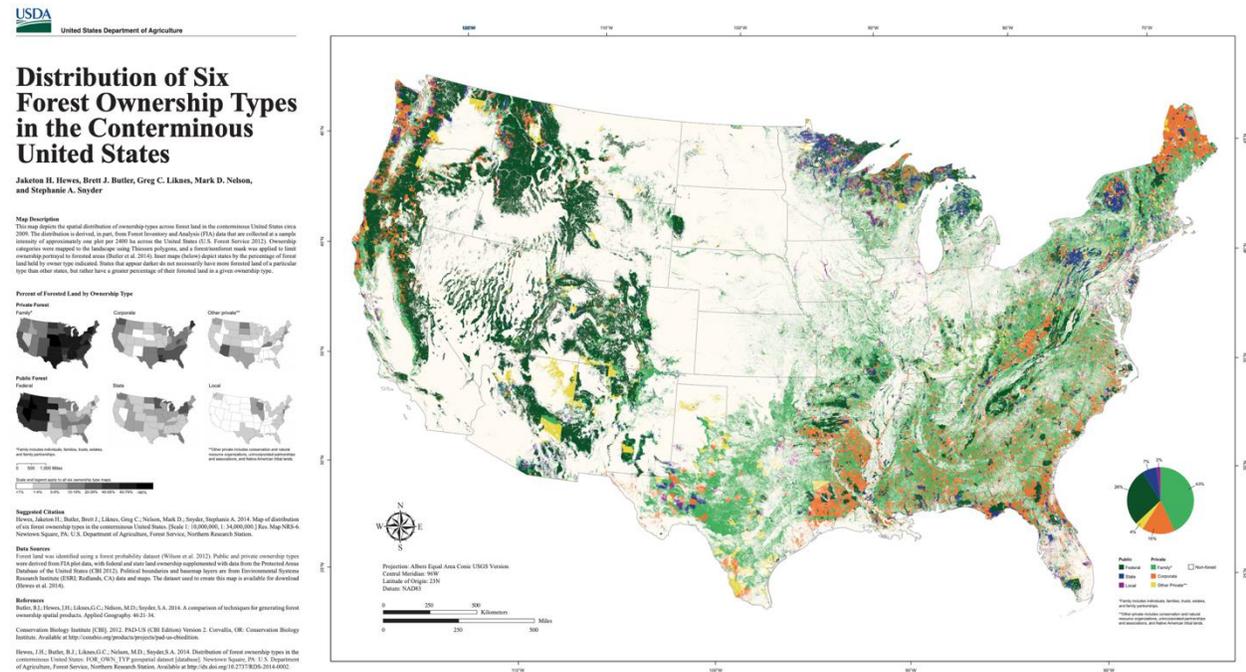
Figure 5: Distribution of Six Forest Ownership Types in the Conterminous United States

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Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Literature Review
Quarterly Census of Employment and Wages (QCEW)

Quarterly Census of Employment and Wages (QCEW)

This study uses Bureau of Labor Statistics (BLS) data to identify private forestland ownership and estimate the location of private forestland owners providing raw materials to support these activities. The study assumption is that private forestland owners are likely to be significant in high forestry-related economic activity markets. The BLS collects data on specific industries to measure their impact by state and county. Each industry sector has a code using the NAICS system, which the BLS uses to classify and track various sectors. This study concentrates on the following industry classifications:

- Logging (NAICS 1133)
- Timber Tract Operations (NAICS 1131)
- Support Activities for Forestry (NAICS 1153)
- Nursery and Tree Production (NAICS 111421)

A summary analysis of the selected industry classifications is provided below.

> A **NAICS (pronounced NAKES) Code** is a classification within the North American Industry Classification System. The NAICS System was developed for use by Federal Statistical Agencies for the collection, analysis and publication of statistical data related to the US Economy.

Although the study reviewed various classifications, it focused on the number of establishments and the Location Quotient (LQ) of establishments per state (which is a way of measuring how prevalent an industry classification is as it relates to the national average).

> **Location quotients** are ratios that allow an area's distribution of employment by industry, ownership, and size class to be compared to a reference area's distribution. The U.S. is used as the reference area for all LQs within the files. If an LQ is equal to 1, then the industry has the same share of its area employment as it does in the nation. An LQ greater than 1 indicates an industry with a greater share of the local area employment than is the case nationwide. - https://www.bls.gov/cew/about-data/location-quotients-explained.htm

The study examined Quarterly Census of Employment and Wages (QCEW) data for private ownership (Code 5) of the industry classifications mentioned above (Table 1). Data used for this study covers 2020, Quarter 2 (April, May, and June). Both state- and county-level data were collected and examined.

QCEW Ownership Codes for NAICS Coded Data

Code	Ownership Title
0	Total Covered
5	Private
4	International Government
3	Local Government
2	State Government
1	Federal Government
8	Total Government
9	Total U.I. Covered (Excludes Federal Government)

Last Modified Date: September 23, 2020

Table 1: QCEW Ownership Codes for NAICS Coded Data

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Logging (NAICS 1133)

> *This industry comprises establishments primarily engaged in one or more of the following: (1) cutting timber; (2) cutting and transporting timber; and (3) producing wood chips in the field. These logging operations are contracted by forestland owners of all sizes. This indicator is significant because the higher concentrations of logging operations could indicate a higher presence of forest landowners in a county.[ii]*

Cross-References. Establishments primarily engaged in--
- Trucking timber without cutting timber--are classified in Industry 484220, Specialized Freight (except Used Goods) Trucking, Local
- Producing wood chips in sawmills--are classified in U.S. Industry 321113, Sawmills

As per 2020 2nd quarter data, Oregon holds the largest number of establishments in logging (612), while Maine has the highest location quotient of logging industries (9.2), which means that logging is nine times more concentrated there than in the typical region.

NOTE: Table 2 below illustrates the top 10 states with quarterly establishments in logging, sorted in descending order of quarterly establishments.

Logging (NAICS 1133)
Ownership Code 5, FY2020-Q2
Source: Bureau of Labor Statistics

	Qtrly Estabs	Lq Qtrly Estabs
OR	612	4.9
AL	523	5.2
GA	494	2.1
NC	454	2.0
MS	408	7.2
WA	386	2.0
ME	381	9.2
MI	373	1.8
AR	372	5.2
LA	332	3.1

Table 2: Top Quarterly Establishments in Logging (FY2020-Q2)

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Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Literature Review
Quarterly Census of Employment and Wages (QCEW)

Timber Tract Operations (NAICS 1131)

This industry comprises establishments primarily engaged in the operation of timber tracts for the purpose of selling standing timber. (Sellers) Timber Tract Operations are typically larger landowners that have vertically integrated supply chain in which they grow, harvest, mill, and refine wood products.[iii]

<u>**Cross-References.**</u> <u>**Establishments primarily engaged in--**</u>
- Acting as lessors of land with trees as real estate property--are classified in Industry 531190, Lessors of Other Real Estate Property
- Growing short rotation woody trees (i.e., growing and harvesting cycle is 10 years or less) – are classified in U.S. Industry 111421, Nursery and Tree Production
- Cutting timber – are classified in Industry 113310, Logging

As per 2020 2nd quarter data, Georgia holds the largest number of quarterly establishments in timber tract operations (72) while Alabama has the highest location quotient of timber tract operations (8.9), which means that timber tract operations are nearly nine times more concentrated there than in the typical region.

NOTE: Table 3 below illustrates the top 10 states with quarterly establishments in timber tract operations, sorted in descending order of quarterly establishments.

Timber Tract Operations (NAICS 1131)
Ownership Code 5, FY2020-Q2
Source: Bureau of Labor Statistics

	Qtrly Estabs	Lq Qtrly Estabs
GA	72	3.9
AL	70	8.9
SC	51	5.9
LA	46	5.5
FL	44	1.0
MS	33	7.3
TX	32	0.7
PA	31	1.4
AR	31	5.5
OR	29	3.0

Table 3: Top Quarterly Establishments in Timber Tract Operations (FY2020-Q2)

*In the United States about one-half of the country is wooded. This amounts to about two-thirds of the nation's presettlement forested land. About 500 million acres of this forested land is classified as timberland, or land capable of growing 20 cubic feet of wood per acre per year. About 130 million acres are owned by the federal government and other state and local governments. The remaining 300 million acres are in relatively small tracts owned by individuals, with 70 million acres being owned by commercial firms. Annually about 4 million seedlings are planted every day. **Oregon, Washington, and California are***

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the country's largest timber producing states, *accounting for more than three-fourths of Western timber production.* **Timber is also the South's largest agricultural product**. *Source:* [NACIS Code 113110](#)

Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Literature Review
Quarterly Census of Employment and Wages (QCEW)

Support Activities for Forestry (NAICS 1153)

This industry comprises establishments primarily engaged in performing particular support activities related to timber production, wood technology, forestry economics and marketing, and forest protection. These establishments may provide support activities for forestry, such as estimating timber, forest firefighting, forest pest control, treating burned forests from the air for reforestation or on an emergency basis, and consulting on wood attributes and reforestation.[iv]

Cross-References. Establishments primarily engaged in--
- Public administration and conservation of forest lands – are classified in Industry 924120, Administration of Conservation Programs
- Individual activities as part of a restoration project – are classified according to the primary activity

As per 2020 2nd quarter data, Oregon holds the largest number of quarterly establishments in support activities for forestry (306) and has the highest location quotient in this industry (7.8), which means that support activities for forestry are nearly eight times more concentrated there than in the typical region.

NOTE: Table 4 below illustrates the top 10 states with quarterly establishments in forest support activities, sorted in descending order of quarterly establishments.

Forest Support Activities (NAICS 1153)
Ownership Code 5, FY2020-Q2
Source: Bureau of Labor Statistics

	Qtrly Estabs	Lq Qtrly Estabs
OR	306	7.8
WA	175	2.8
GA	167	2.2
AL	158	5.0
CA	155	0.4
MS	133	7.4
NC	126	1.8
SC	115	3.3
MI	93	1.4
FL	87	0.5

Table 4: Top Quarterly Establishments in Forest Support Activities (FY2020-Q2)

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Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
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Nursery and Tree Production (NAICS 111421)

> *This U.S. industry comprises establishments primarily engaged in (1) growing nursery products, nursery stock, shrubbery, bulbs, fruit stock, sod, and so forth, under cover or in open fields and/or (2) growing short rotation woody trees with a growth and harvest cycle of 10 years or less for pulp or tree stock.[v]*

Cross-References. Establishments primarily engaged in--
- Growing vegetable and melon bedding plants – are classified in Industry 11121, Vegetable and Melon Farming
- Operating timber tracts (i.e., growing cycle greater than 10 years) – are classified in Industry 113110, Timber Tract Operations
- Retailing nursery, tree stock, and floriculture products primarily purchased from others – are classified in Industry 444220, Nursery, Garden Center, and Farm Supply Stores

As per 2020 2nd quarter data, Florida holds the largest number of quarterly establishments in nursery and tree production (867) while Oregon has the highest location quotient of nursery and tree production operations (4.7), which means that Nursery and Tree Production is nearly five times more concentrated there than in the typical region.

NOTE: Table 5 below illustrates the top 10 states with quarterly establishments in nursery and tree production, sorted in descending order of quarterly establishments.

Nursery and Tree Production (NAICS 111421)
Ownership Code 5, FY2020-Q3
Source: Bureau of Labor Statistics

	Qtrly Estabs	Lq Qtrly Estabs
FL	867	2.4
CA	528	0.7
OR	369	4.7
TX	289	0.8
NC	205	1.4
WA	186	1.5
MI	179	1.4
PA	164	0.9
NY	148	0.5
GA	141	1.0

Table 5: Top Quarterly Establishments in Nursery and Tree Production (FY2020-Q2)

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American Forest Foundation

The [American Forest Foundation (AFF)](#) "empowers family forest owners to make a meaningful conservation impact," working with families, partners, and elected officials to promote forest stewardship and protect our nation's forest heritage. Our study utilized several publications from the AFF to guide our research, including [Why All Acres Matter: Family Forest Owners Are Key to Conservation Impact](#) and [Family Forests Provide Vital Resources.](#) *Why All Acres Matter* details the importance of well-managed forest lands under all types of ownership, including privately held lands, and their role in the success of conservation efforts. It stresses the significance of considering Family-Owned Forest Lands in outreach and conservation measures because families and individuals collectively own more acres of woodlands across the U.S. than any other group, including the federal government and corporations. Figure 6 shows the distribution and locations of the various types of forest land ownership across the U.S., indicating the Family-Owned Forest Lands that are of interest to this study. The article then emphasizes the importance of recognizing the diversity of ownership types when designing policies, funding, opportunities for technical assistance, and new solutions that remove barriers. The second resource, *Family Forests Provide Vital Resources*, details the importance of Family-Owned Forest Lands in connection with wildlife habitats, clean water, sustainable wood sourcing, rural jobs, and economic impact, as well as natural carbon sequestration.

These resources reiterated the importance of studying Family-Owned Forest Lands when considering the potential for an overall positive impact via outreach and conservation efforts.
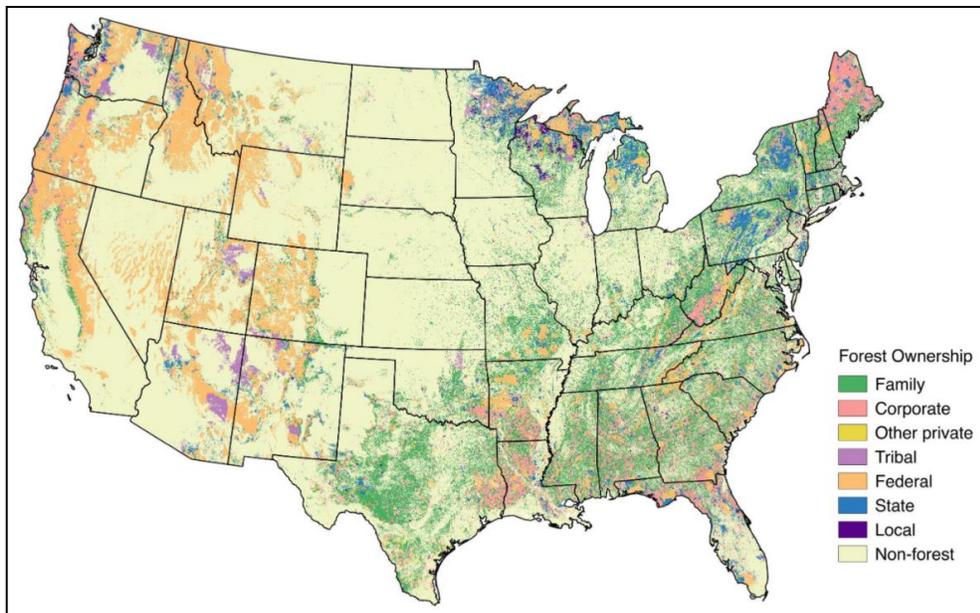
Figure 6: Forest Ownership (forestfoundation.org)

Forest Landowners Association

The [Forest Landowners Association](#) represents the economic interests of private forest landowners and their natural resource assets. The FLA represents forest landowners at the national level, regardless of size, corporate structure, location, certification status, or tax classification. FLA membership ranges from large forest businesses whose land has been in the same families for generations to those who have become forest landowners because they view forests as a long-term investment.

The policy priorities that the association addresses include:

1. Regulation of trade imbalances and disadvantages affecting timber producers.
2. The uneven supply of raw timber products that have depressed prices at domestic mills.
3. Regulatory policies that impose undue economic burdens on forest landowners.

National Alliance of Forest Owners (NAFO)

The [National Alliance of Forest Owners (NAFO)](#) is a national advocacy organization that aims to advance federal policies which ensure working forests provide clean air, clean water, wildlife habitats, and jobs through sustainable practices and more robust markets. NAFO member companies own and manage more than 46 million acres of private working forests – forests that are managed to provide a steady supply of timber. NAFO's membership also includes state and national associations representing tens of millions of additional acres. NAFO releases studies and publications that produce data helping to identify counties and states with a high economic volume of forest activity and interactive maps on private working forests. According to their studies, private working forests in the U.S. support 2.5 million jobs. NAFO also provides data on the number of private acres, public acres, and NAFO acres, the number of jobs, payroll, sales and manufacturing in the form of an interactive map (see Figure 7 below). In addition, the NAFO provides information on forest products manufacturing facilities – location of the facilities and output.
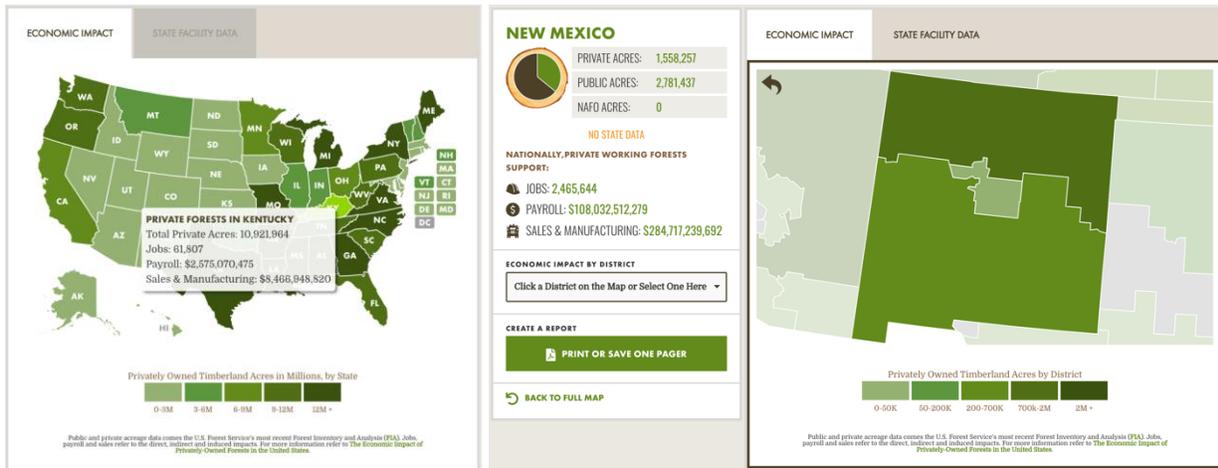
Figure 7: Economic Impact by State (2016 NAFO)

In the economic impact by state publication, NAFO assesses the economic impact of privately owned forests in the U.S. in the most forested areas of the country and specifically evaluates the various land management practices which contribute to regional and state economies.

Family Forest Research Center

The [Family Forest Research Center](#) studies the behaviors and attitudes of family forest owners throughout the United States. They define family forest owners to include the families, individuals, trusts, estates, family partnerships, and other unincorporated groups of individuals that own private forests. By investigating family forest ownership's social, political, and economic dimensions, they seek to improve this population's forest conservation efforts. The Family Forest Research Center concludes that family forest owners control 263 million acres of U.S. forests. All of them make decisions about managing their land (including development issues, subdivision, sale, or succession management). Their publications highlight the fact that complex social and ecological factors influence these decisions. The Family Forest Research Center asserts that the cumulative impact of millions of family forest owners' independent choices are what will determine the future of U.S. forests.

Some of the findings from their publications, which are relevant to our study, include the statistic that 61 percent of family forest owners own fewer than 10 acres, lending to the interest of locating the areas where these smaller land holdings might be more concentrated. Additionally, they have found that average land tenure is 26 years, which is relevant when considering the presence of established versus emerging Hispanic communities. Forest owners are making many decisions across the landscape that affect forest fragmentation, habitat connectivity, and ecological function. Questions arise about how changes in climate, species distribution, and markets will impact the land and, in turn, future forest owner decision making (Figure 8).
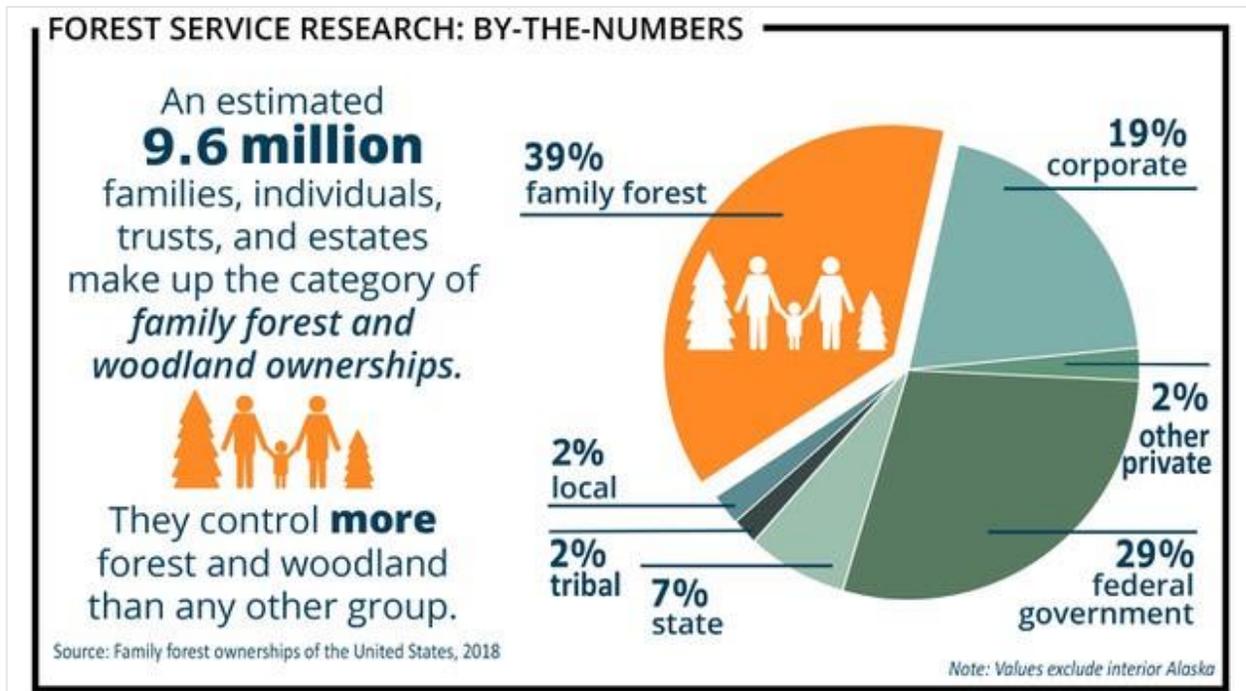
Figure 8: Forest Service Research (www.familyforestresearchcenter.org)

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Forest 2 Market (Foresty Type Groups)

[Forest2Market](#) is a global provider of timber pricing, cost benchmarks, and in-depth analytics for wood raw materials supply chain participants. They provide data sets that serve as insight into the economics and businesses incorporated in forestry activities. These data sets are comprehensive resources collected at the transaction level, where no survey data is gathered. This transaction data provides a full-spectrum view of market dynamics and includes information supplied by forest products companies, wood dealers, loggers, consultants, and landowners. The map in Figure 9 illustrates the various Forest Type Groups by region.
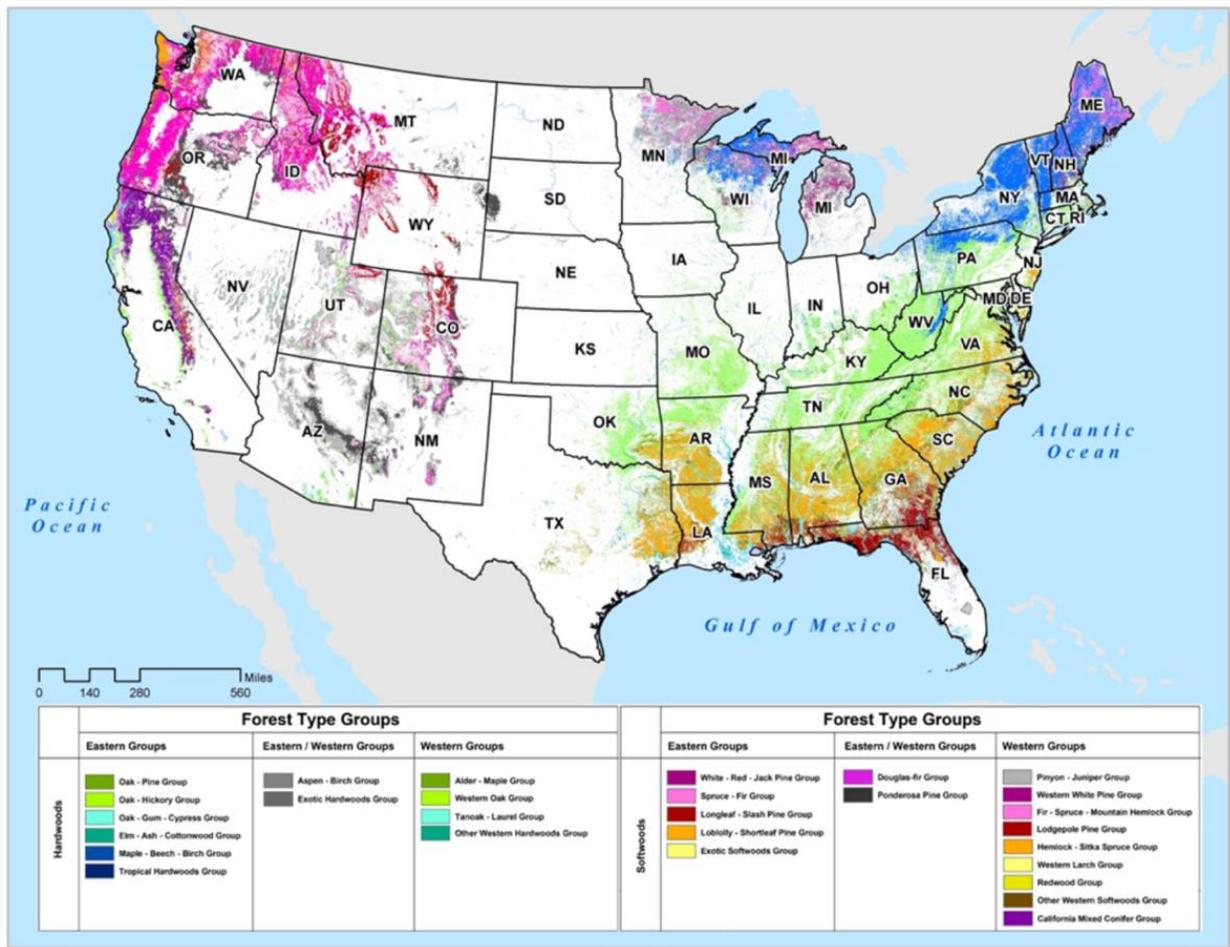
Figure 9: Forest Type Groups (forest2market.com)

NOTE: The enumeration study team reviewed additional resources and data, but these were not as relevant and specific as others included above. A list of these sources appears in the Appendices A as supplementary data.

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Analysis/Summary

The research on data sources and forestry-related resources was to find how important or significant the information was to the enumeration of Hispanic Forest Landowners and to identify any advantages and biases. The following is a list relevant findings and implications found in the literature review.

a) The American Forest Foundation underscores the size and proportion of Family-Owned Forest Lands. There are, however, unidentified, and uncertain counts of Hispanic and Latino family forest owners in the United States and Puerto Rico. Recognizing the importance of including underrepresented populations should be reflected in future culturally suitable outreach to improve the representation of all demographics for this critical data set.

b) Findings from Family Forest Research Center publications relevant to our study reveal that 61 percent of family forest owners own fewer than 10 acres, which highlights the need to locate areas where these smaller landholdings might be more concentrated. Additionally, the average land tenure is 26 years, which is relevant when considering established versus emerging Hispanic communities.

c) The National Alliance of Forest Owners publications and resources helps identify areas where private forests are located and where they are creating the most value. It validated the information collected from other sources that the Southeast Region has a high concentration of privately owned timber, and that the Western Region of the U.S. has more federally owned lands. This detailed state-level information will become more valuable in the next phase of this project, as it will indicate mills and forestry operations with knowledge of Hispanic Forrest Landowners.

d) To examine specific characteristics of Hispanic Forest Landowners, questions will be administered from the NWOS in areas with a higher likelihood of Hispanic presence during the next phase, which will include outreach. It can also help understand if Hispanic Forest Landowner respondents are substantially different in diverse locations across the United States.

e) Key Forest Inventory and Analysis data collected for all counties was and will be central to the study as it focuses on the correlation and relationships between the percent of forest land and timberland to other Hispanic demographic indicators.

f) Forest2Market data will be useful in the outreach stages of this project in helping to identify areas in individual states where private minority landowners are selling and growing viable timber.

g) When combining the Forest Inventory and Analysis (FIA) data results and Bureau of Labor Statistics (BLS) information, 10 states rank the highest in quarterly establishments for Logging, Timber Tracts, and Forest Support Activities. The Southeast Region stands out in all the business classifications, which makes sense since Timber is the Southeast's biggest export, according to BLS. However, Oregon ranks highest by a large margin when it comes to both Forest Support Activities and Logging. Yet, the bulk of the operations seem to be concentrated in the Southeastern United States; Alabama, Arkansas, Mississippi, and Georgia are all present in the top 10, and Louisiana, South Carolina, North Carolina, and Florida place in two of the indicators.

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Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Hispanic/Latino Presence in the United States
Population Characteristics

HISPANIC/LATINO PRESENCE IN THE UNITED STATES

Population Characteristics

Data Indicators Collected and Source

As of 2020, there are approximately 62.1 million Hispanics in the United States, an increase of more than 10 million Hispanic residents since 2010 (Figure 10).[vi] For this study, to examine Hispanic population characteristics by state and county, we used 2019 American Community Survey data (5-Year Estimates).

> *The American Community Survey (ACS) is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. Information from the survey generates data that help determine how more than $450 billion in federal and state funds are distributed each year. In order to support local governments, communities, and federal programs, data was collected on the following topics: age and sex, race and ethnicity, family and relationships, income and benefits, health insurance, education, veteran status, disabilities, where you work and how you get there, and where you live and how much you pay for some essentials.[vii]*

U.S. Hispanic population reached more than 62 million in 2020

In millions
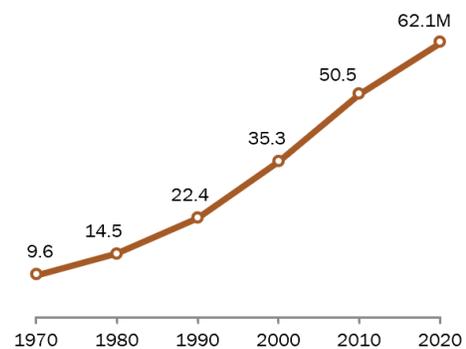
Note: Population totals are as of April 1 for each year. Hispanics are of any race.
Source: Pew Research Center analysis of 1970-1980 estimates based on decennial censuses (see 2008 report "U.S. Population Projections: 2005-2050"), 1990-2020 PL94-171 census data.

PEW RESEARCH CENTER

Figure 10: U.S. Hispanic Population (1970 – 2020)

Table 6 is a chart describing the difference between 1-Year and 5-Year Estimates. Although the 5-Year Estimate is the "least current" data set, it is the *most reliable.* It allows for comparison and analysis of all counties, townships, or census tracts, which are geographic levels necessary when analyzing various populations and other needs and indicators in the forestry landownership study.

1-Year Estimates	5-Year Estimates
12 months of collected data	60 months of collected data
Data for areas with populations of 65,000+	Data for all areas
Smallest sample size	Largest sample size
Less reliable than 3-year or 5-year	Most reliable
Most current data	Least current data
Annually released: 2005-present	Annually released: 2009-present
Best used when	**Best used when**
Currency is more important than precision; Analyzing large populations	Precision is more important than currency; Analyzing very small populations; Examining tracts and other smaller geographies because 1-Year Estimates are not available

Table 6: U.S. Census Data: ACS 1-Year and 5-Year Estimate Features

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Hispanic/Latino Presence in the United States
Population Characteristics

Various indicators were collected to assist in identifying differences and similarities between states and counties regarding its Hispanic residents and the [general] population over age 5 that speak Spanish as their primary language. Figures on the following pages will illustrate some of the indicators on the "big picture" scale, offering some general descriptions. In addition, the study utilized county-level data to provide insights into possible connections between unique population characteristics and the potential number of Hispanic Forest Landowners in the United States.

Tables 7 and 8 provide a comprehensive list of indicators selected for the study.

Hispanic/Latino Data Indicators Source: 2019 ACS 5-Year Estimates	
Topic/Indicator	**U.S. Census Table**
Total Hispanic / Latino Population	B03001
Mexican	
Puerto Rican	
Cuban	
Dominican (Dominican Republic)	
Central American *(Costa Rican, Guatemalan, Honduran, Nicaraguan, Panamanian, Salvadoran, Other)*	
South American *(Argentinean, Bolivian, Chilean, Colombian, Ecuadorian, Paraguayan. Peruvian, Uruguayan, Venezuelan, Other)*	
Other Hispanic or Latino	
Hispanic Males	B01001I
Hispanic Females	B01001I
Median Age Hispanic Population	B01002I
Total enrolled in school (Age 3+)	B14007I
Enrolled in college, undergraduate years	
Graduate or professional school	
Not enrolled in school (Age 3+)	
Total Owner-occupied housing units	S2502
Owner-occupied housing units Hispanic or Latino origin	
Percent owner-occupied housing units Hispanic or Latino origin	

Table 7: Hispanic/Latino Data Indicators (2019 ACS 5-Year Estimates)

Total Population: Nativity and Language (Spanish) Source: 2019 ACS 5-Year Estimates	
Topic/Indicator	**U.S. Census Table**
Total Population over Age 5	S1603
Total Population over Age 5 - Native	
Total Population over Age 5 - Foreign Born	
Of Foreign Born - Naturalized Citizen	
Of Foreign Born - Not a U.S. Citizen	
Total Population Over Age 5 - Speak Spanish (as primary language)	
Pop 5 to 17 Years; Pop 18 to 64 Years; Total Pop 65 Years and over	
5 Years and Over speak Spanish - Native	
5 Years and Over speak Spanish - Foreign Born	
5 Years and Over Speak Spanish Foreign-Born naturalized U.S. Citizen	
5 Years and Over Speak Spanish Foreign-Born Not a U.S. Citizen	

Table 8: Total Population: Nativity and Language (Spanish) (2019 ACS 5-Year Estimates)

Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
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Population Characteristics

Note about the Latino/Hispanic Identity: Hispanics in the United States include any person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. Latino is a person of Latin American origin living in the U.S.[viii] Widespread use of the term "Hispanic" began in the 1970s, when the U.S. Census asked individuals to self-identify as Mexican, Puerto Rican, Cuban, Central/ South American, or "other Hispanic." Although the terms Hispanic and Latino are used interchangeably, the connotations are different.

Hispanic/Latinos in the U.S. describe their identity in different ways, reflecting the diversity of origins in the Latino community, the immigrant experience, and geography. Broadly, some Latinos use panethnic terms such as "Hispanic" or "Latino" to describe their identity; some prefer their family's Hispanic origin group; others use "American." Previous Hispanic Trends Project surveys conducted by Pew Hispanic Research have found that most Latinos **have used all of these** at some point to describe themselves.[ix]

Population Pyramids
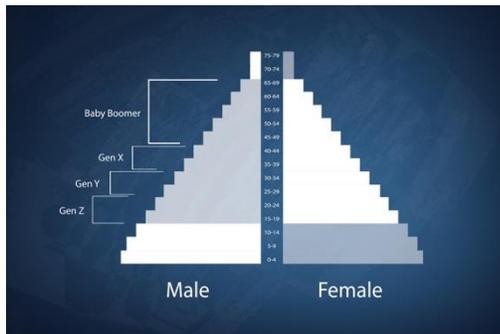
Population pyramids are important graphs for visualizing how populations are composed when looking at groups divided by age and sex, how populations are composed and how they change. We can understand the changes in generations, from baby boomers, generation X, generation Y, and generation Z. It is relevant to our study to understand how many of the future forest landowners grow, shrink, or stay the same. Depending on the generation, we can follow a trajectory in different regions of the U.S., which can be expansive, constrictive, and stationary.

(Image Credit: National Geographic: 2016 Generation Population Pyramid)

According to Pew Hispanic Research, one in four Generation Z'ers are Hispanic, 14 percent are Black, 6 percent are Asian, and 5 percent are of some other race or two or more races.[x] Generation Z represents the prevailing change of racial and ethnic makeup in the United States. A reduced majority (52 percent) are non-Hispanic White, which is considerably smaller than the share of non-Hispanic White Millennials in 2002 (61 percent).

In the population pyramids on the following page (Figures 11 and 12), the shape of the population is affected by both high fertility and high mortality rates. The first, the nationwide population pyramid, shows a wider middle of the graph pyramid as the population has high numbers of middle-aged and elderly people, but fewer young people. However, in the second figure, the Hispanic population shows a sharp triangle shape in the graph. It means that the population has many young people. The study has focused on high Hispanic female mortality in childbirth, or the migration of young workers out of poorer regions in Latin America to visualize how the future population will be affected. The study examines other population indicators related to, or superimposed on, forestry-related data to identify trends or possible connections in the following sections.

Hispanic/Latino Presence in the United States

Population Characteristics
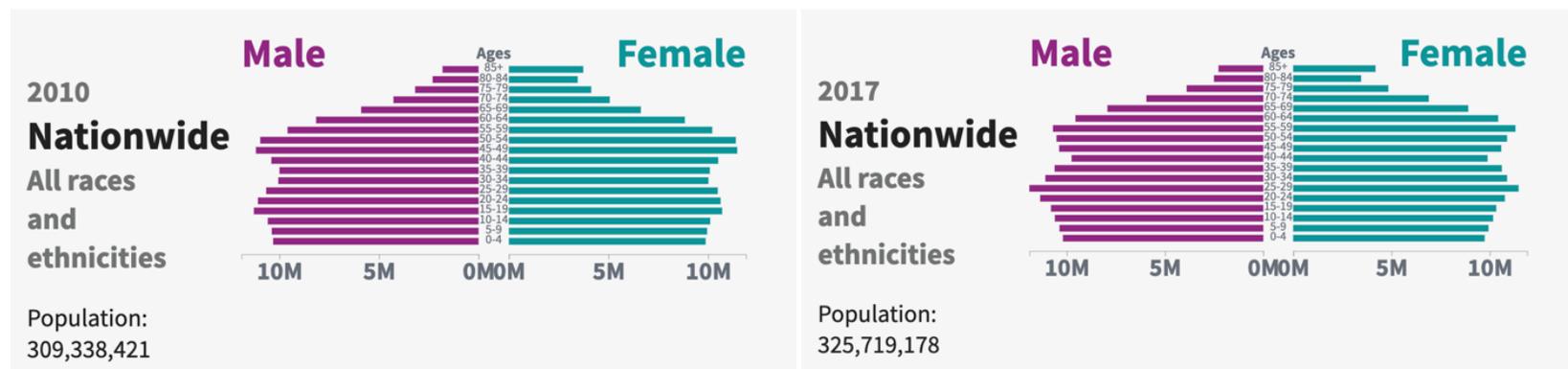
Figure 11: United States Population Pyramid: All Races and Ethnicities (2010 and 2017)
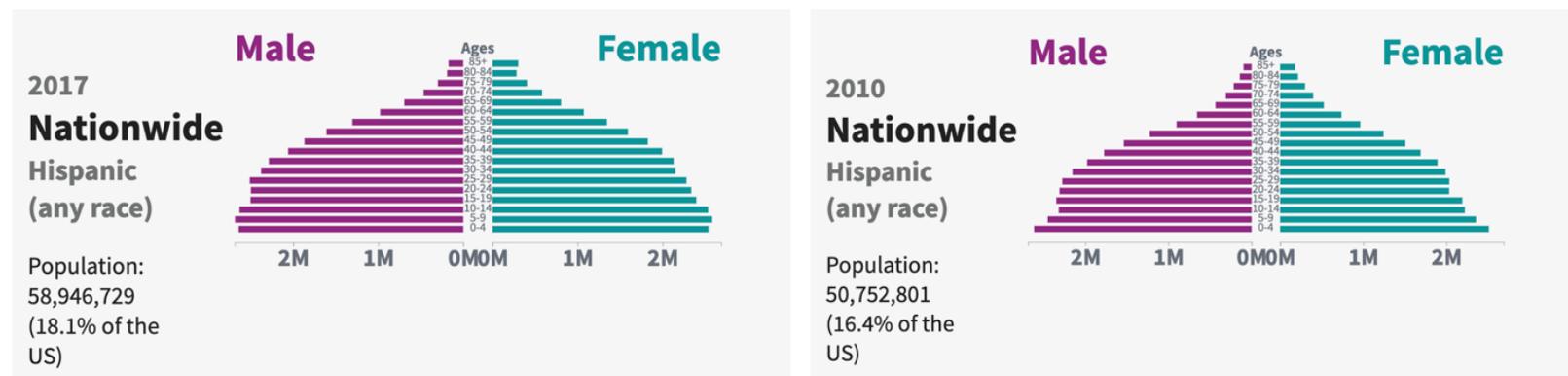
Figure 12: United States Population Pyramid: Hispanic (Any Race) (2010 and 2017)

For additional population pyramids by state, please see https://usafacts.org/articles/population-pyramids-every-state/

Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Hispanic/Latino Presence in the United States
Population Characteristics

Total Population

Based on U.S. Census Data, using 2019 ACS 5-Year Estimates, the top 10 states with the highest number of Hispanic residents (in descending order) are: California, Texas, Florida, New York, Arizona, Illinois, New Jersey, Colorado, New Mexico and Georgia (Figures 13 and 14). The Hispanic population in these states ranges from 15.3 million in California to 992,000 in Georgia.
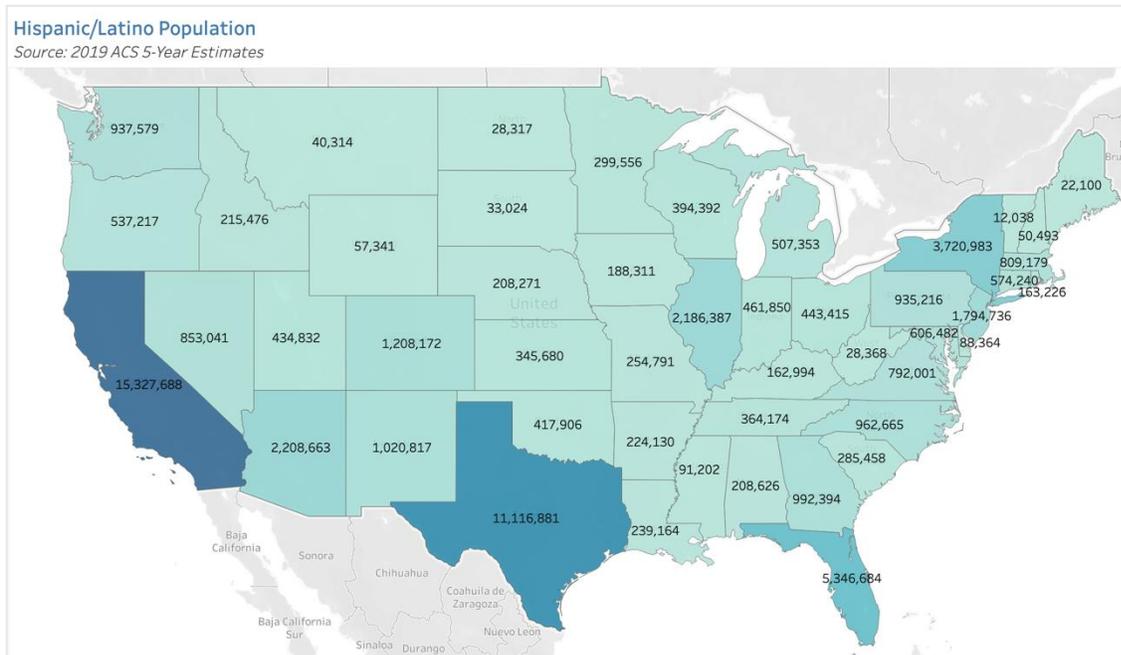
Figure 13: Hispanic/Latino Population (2019 ACS 5-Year Estimates)
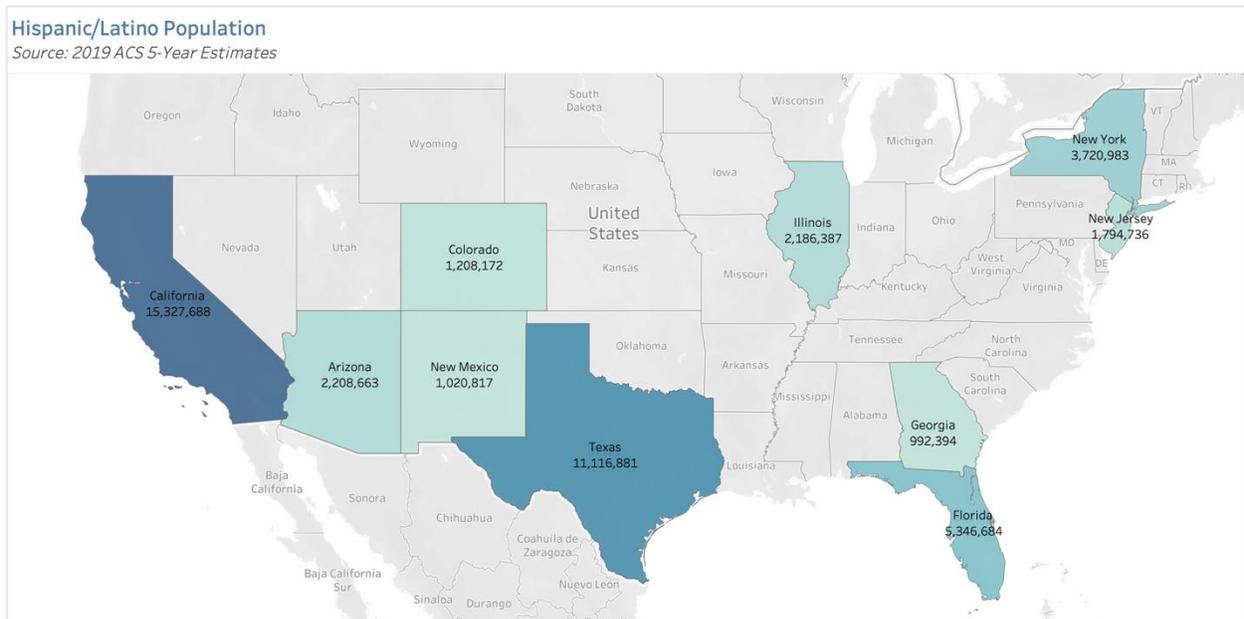
Figure 14: Hispanic/Latino Population (Top 10 States) (2019 ACS 5-Year Estimates)

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Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Hispanic/Latino Presence in the United States
Population Characteristics

Of the 3,143 counties and independent cities for which census data was collected, 796 report a Hispanic population of at least 5,000. Los Angeles County, California, has the highest number of Hispanic residents, almost 4.9 million (Figure 15).
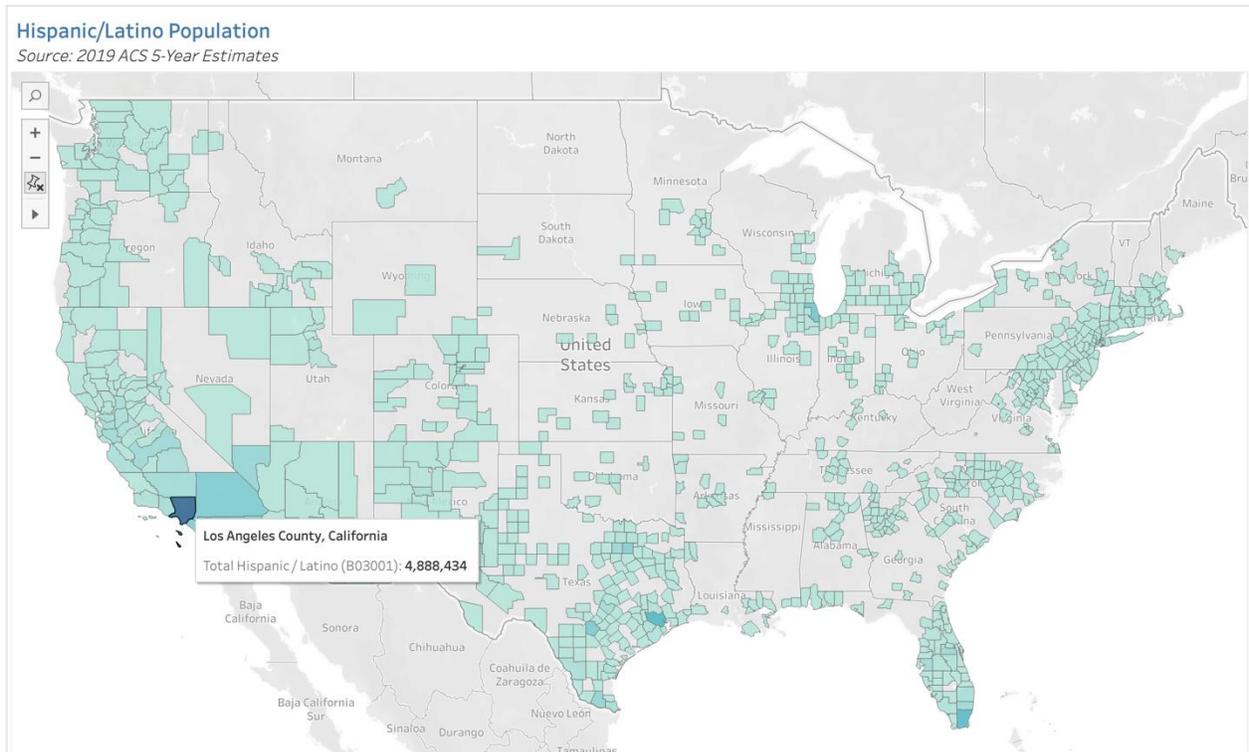
Figure 15: Hispanic/Latino Population (Counties with 5,000+) (2019 ACS 5-Year Estimates)

Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Hispanic/Latino Presence in the United States
Population Characteristics

Median Age

The median age of the Hispanic population ranges from 35.7 (Florida) to 23.5 (Iowa and South Dakota) (Figure 16).
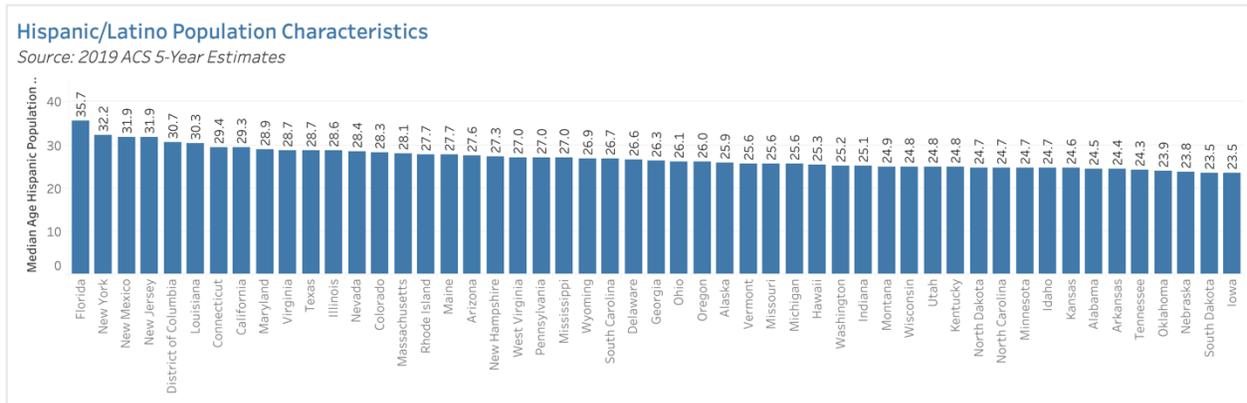
Figure 16: Hispanic/Latino Population: Median Age (2019 ACS 5-Year Estimates)

California and Texas have a combined Hispanic population of more than 26 million, with a media age of 29.3 and 28.7, respectively (Figure 17).
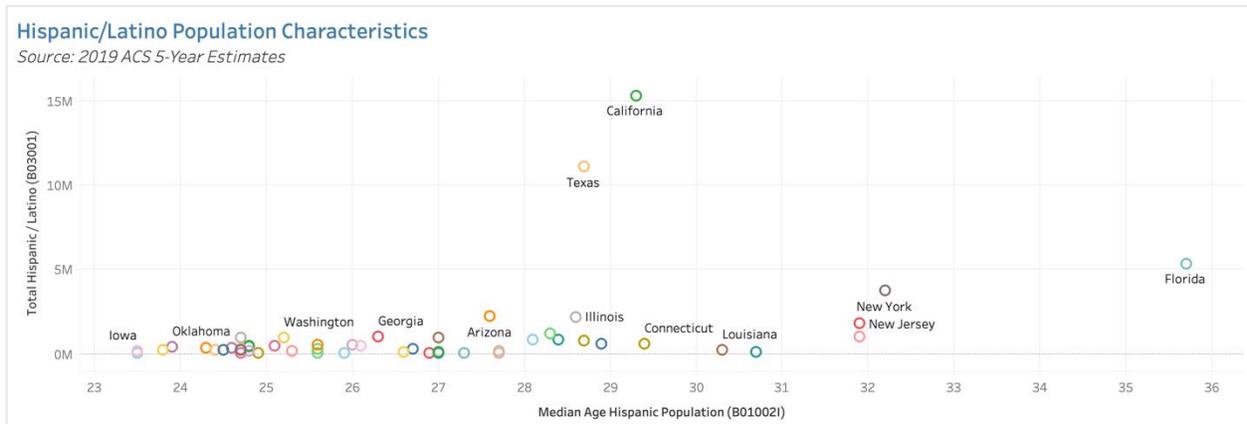
Figure 17: Hispanic/Latino Population: Median Age (2019 ACS 5-Year Estimates)

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Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Hispanic/Latino Presence in the United States
Population Characteristics

Homeownership: Owner-Occupied Housing Units

According to a study by the Urban Institute, more than half of homeownership growth has come from the Latino population over the past decade.[xi] That trend is expected to continue, and the study forecasts that Latino buyers will make up 70 percent of homeownership growth from 2020 to 2040. In addition, the Urban Institute suggests that Latinos will be the only ethnic or racial group that will experience a higher homeownership rate over the next couple of decades.

Over the next 25 years, the Hispanic population will make up more than half of all net new households in the United States, according to a study of the Urban Institute.[xii] As a result, Hispanic Americans will drive future housing demand. Two Texas cities have already reversed the Hispanic housing gap and have a higher rate of Hispanic homeownership today than non-Hispanic White homeownership: El Paso and Laredo, Texas. According to the Urban Institute, El Paso's Hispanic homeownership rate is 63.9 percent, and Laredo's Hispanic homeownership rate is 61.5 percent.[xiii] It is essential to add that the availability of affordable housing makes a big difference in Hispanic homeownership when compared with markets where there is a lack of affordable housing, like in the Northeast region of the U.S. A robust Hispanic housing ownership representation in Texas makes the state important in areas where forest land is significant and critical in Hispanic Forest Landownership outreach efforts.

Based on U.S. Census Data, using 2019 ACS 5-Year Estimates, in the United States there are approximately 77.2 million owner-occupied housing units, of which just under 10 percent are owned by Hispanic residents, 7.5 million. New Mexico has the highest proportion of owner-occupied housing units that are Hispanic-owned, 41.1 percent, while Maine, Vermont, and West Virginia have the lowest, all less than 1 percent (Figure 18).
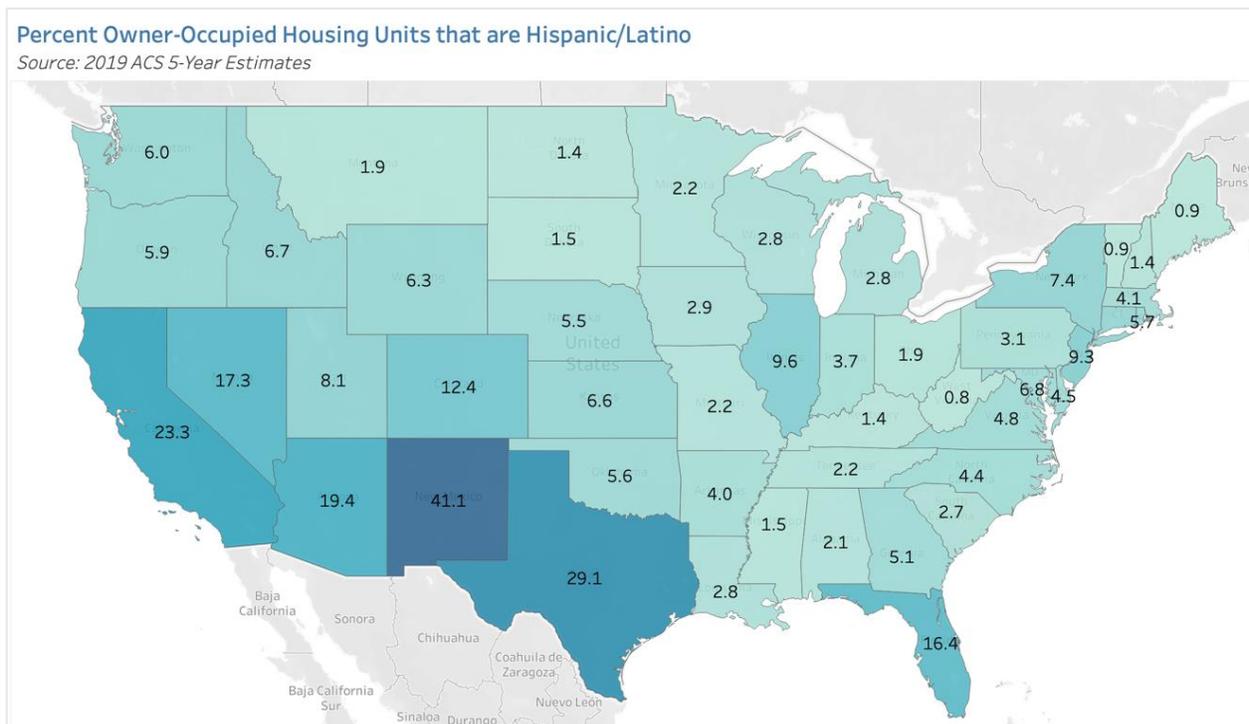
Figure 18 Hispanic/Latino Population: Owner-Occupied Housing Units (2019 ACS 5-Year Estimates)

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Hispanic/Latino Presence in the United States

Population Characteristics

Of the 3,143 counties and independent cities for which census data was collected, 221 report 20 to 99.1 percent of owner-occupied housing being Hispanic. The county with the highest percentage of Hispanic owner-occupied housing units is Starr County, Texas, where 12,048 of 12,160 total owner-occupied housing units, or 99.1 percent, are owned by Hispanic residents (Figure 19).
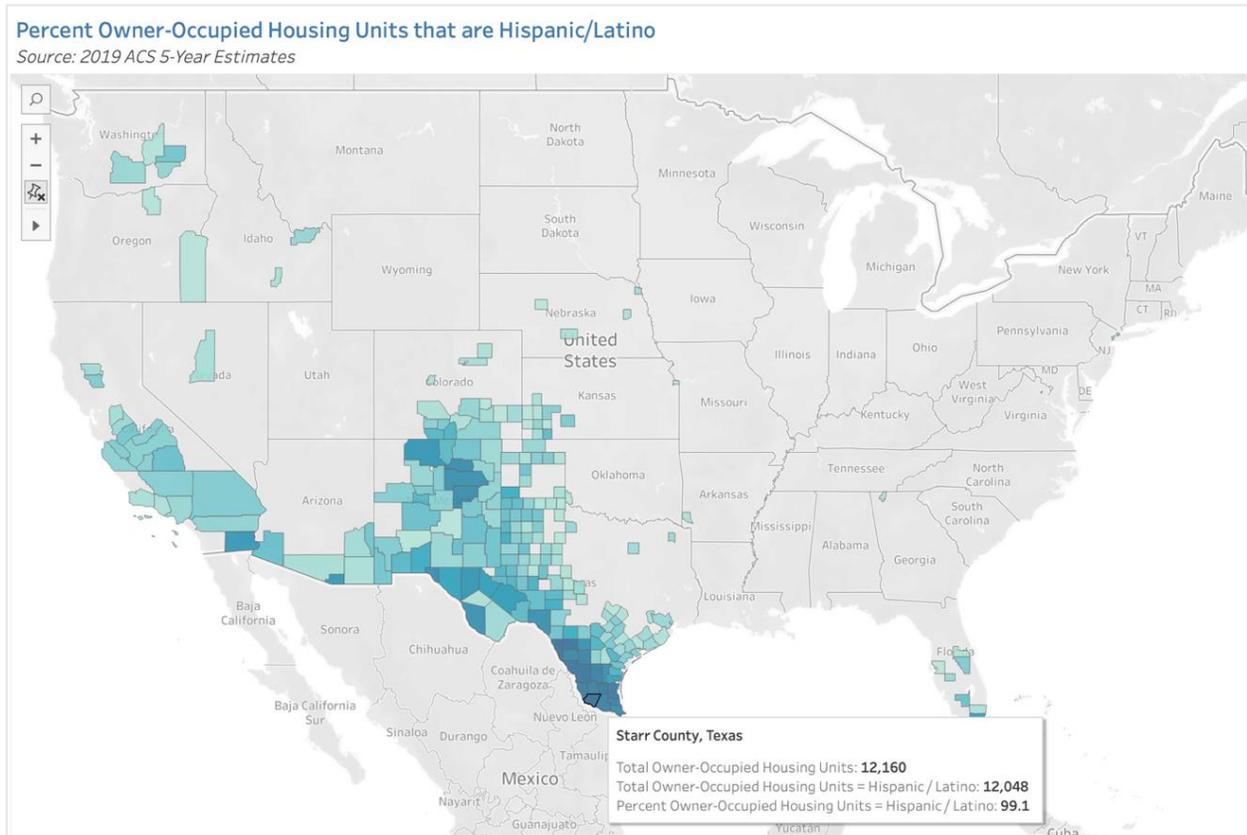
Figure 19: Hispanic/Latino Population: Owner-Occupied Housing Units (20-99.1 percent) (2019 ACS 5-Year Estimates)

Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Hispanic/Latino Presence in the United States
Population Characteristics

Eligible Hispanic Voters by Congressional District

The last Presidential election saw a dramatic rise in voting registrations and voting by some 18.7 million Latinos. According to the Center for Latin American, Caribbean and Latino Studies at City University of New York, about one in 10 voters was Latino. The participation was due to record registrations and turnout by younger Latinos, ages 18 to 44. It is also the first time that there are more Latinos registered than African Americans.[xiv]

Other research concludes that most Hispanic immigrants who have not yet been naturalized (become a citizen) would do it if given an opportunity.[xv] Assuming Hispanic immigration continues, the Hispanic electorate will expand beyond the numbers driven by population growth among Hispanics already living in the U.S. In addition to having the right to vote, Hispanics who become naturalized citizens want the benefits of civil and legal rights, desire access to the benefits and opportunities, and focus on family-related reasons.

In 2018 there were almost 30 million eligible Hispanic voters, of which there were 7.8 million in California, 5.6 million in Texas and 3.1 million in Florida. In congressional district 40 in California, 79.8 percent of all eligible voters were Hispanic. Twenty-five counties in California, Texas, Florida, New York, Illinois, and Arizona report an eligible Hispanic voter proportion of 50 percent or more. Figures 20 and 21 illustrate the number and percentage of eligible Hispanic voters in New Mexico and North Carolina.

Hispanic Eligible Voters
Table 2D. Characteristics (Race and Hispanic Origin) of the Citizen Voting-Age Population for Congressional Districts: 2018
Source: https://www.census.gov/topics/public-sector/voting/data/tables.html
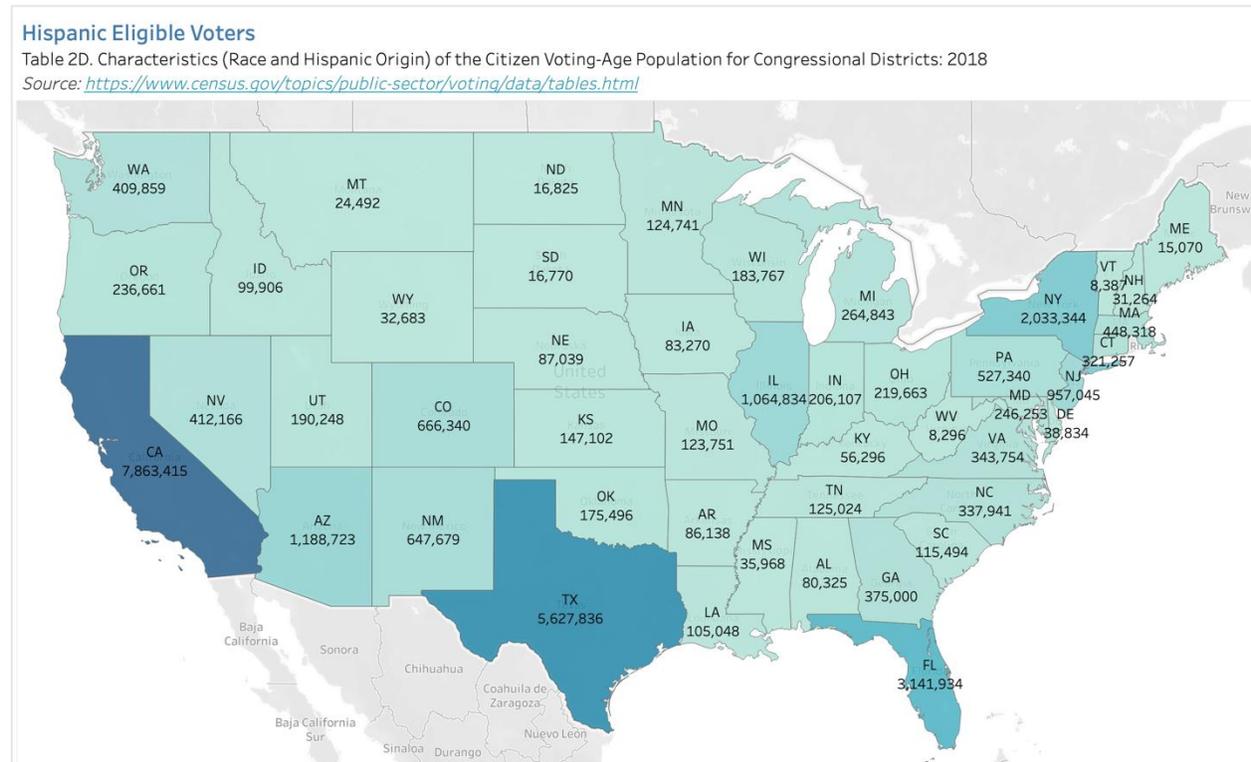
Figure 20: Hispanic Eligible Voters (2018)

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Hispanic/Latino Presence in the United States

Population Characteristics
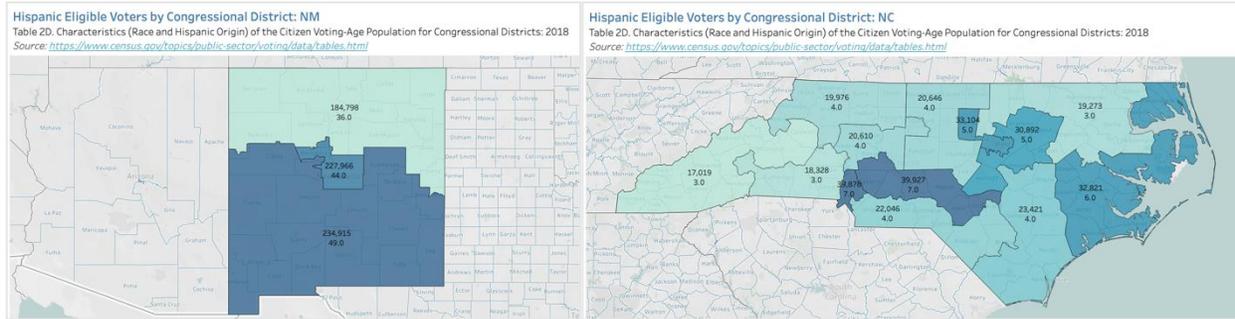
Figure 21: Hispanic Eligible Voters by Congressional District in New Mexico and North Carolina (2019)

Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Hispanic/Latino Presence in the United States
Population Characteristics

Foreign-Born Naturalized Citizens

In the United States, there are approximately 305 million individuals over the age of 5. Almost 44 million are foreign-born; about half of all foreign-born residents are naturalized citizens, and half are non-U.S. citizens. Roughly 4.6 million naturalized citizens in the United States speak only English at home, while 17.2 million speak a language other than English at home. Of those 17.2 million naturalized citizens that speak a language other than English at home, almost 6.9 million speak Spanish (2.2 percent of all individuals in the United States over age 5).

In Florida and California, 6.3 and 5.1 percent of all residents over the age of 5 are foreign-born naturalized citizens who speak Spanish as their primary language at home, approximately 1.3 and 1.9 million, respectively (Figure 22).
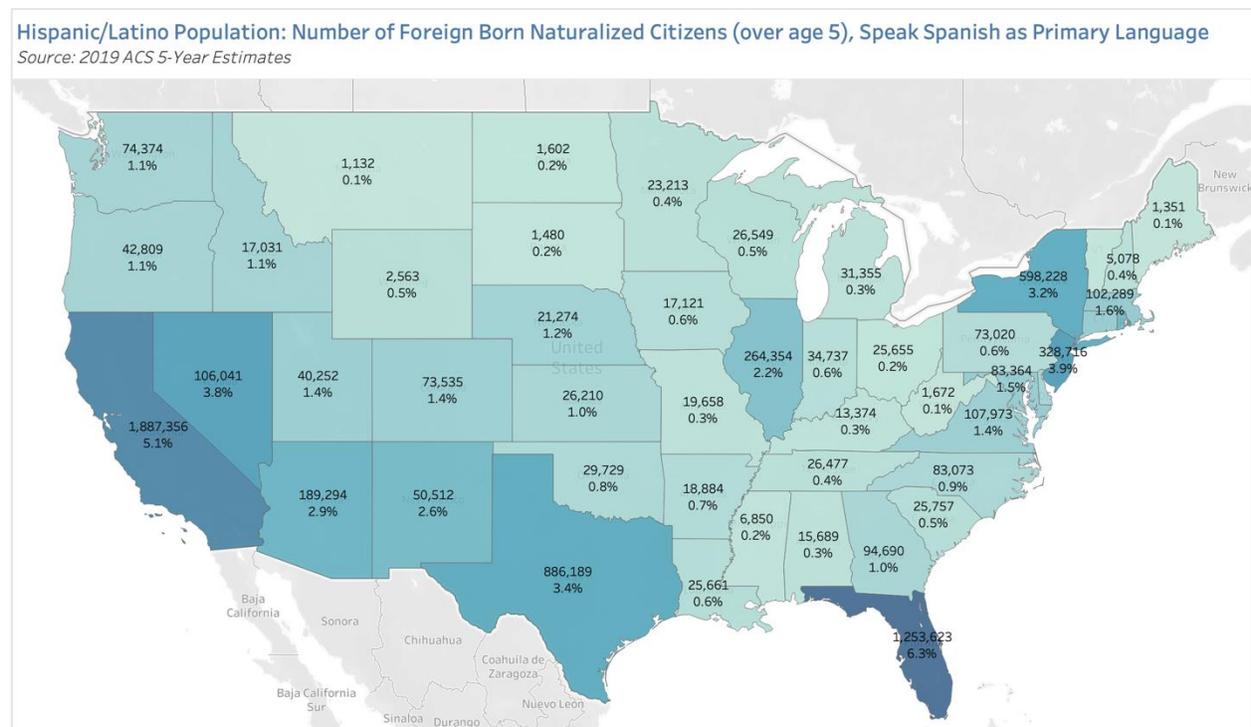
Figure 22: Foreign Born Naturalized Citizens: Speak Spanish as their Primary Language (2019)

Of the 3,143 counties and independent cities for which census data was collected, 64 reported 5 percent or more of their total population over the age of 5 to be foreign-born naturalized citizens who speak Spanish as their primary language at home. For example, in Miami-Dade County, Florida, 26.7 percent of all residents over 5 years of age are foreign-born naturalized citizens who speak Spanish as their primary language at home. In addition, the following counties report their proportion to be above 10 percent: Santa Cruz County, AZ (19.3 percent), Imperial County, CA (15.9 percent), Maverick County, TX (12.3 percent), Kennedy County, TX (12.2 percent), Hudson County, NJ (11.3 percent), Yuma County, AZ (10.9 percent), El Paso County TX (10.9 percent), and Colusa County, CA (10.0 percent).

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Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
**Hispanic/Latino Presence in the United States**
Population Characteristics

STUDY IMPLICATION: Becoming bilingual opens opportunities to "assimilate" into a culture and defines how people will participate. Language doesn't need to be a limitation and can be a point of access to growth and development.

As we established earlier, private family forest landowners are the largest single landowner category, owning approximately one-third of the nation's forests. These landowners make individualized decisions on forest management. A perceived barrier to a limited English-proficient family having more active forest management could be education and assistance in planning management of family forest lands. Organizations such as Cooperative Extension, State forestry agencies, and NRCS provide resources and management advice for forest owners. These agencies reach most counties of the U.S., and their network could cultivate long-term relationships with landowners. However, based on mYo's outreach experience with Spanish-speaking families in Southeastern states, most of these agencies have been shown to have limited reach into Hispanic communities. Talent development and recruitment of Hispanic professionals can make a significant difference, but it is not happening as fast as necessary, creating significant gaps in knowledge and adaptation of important climate and conservation practices.

During the research, the team found that the U.S. Forest Service (USFS), in partnership with the Hispanic Access Foundation (HAF), has partnered to support the next generation of conservation and environmental advocates through the Resource Assistants Program (RAP). The partnership aims to build a strong community of inspired, skilled, motivated Latinx leaders through substantial work experience, building skills required for success in natural and cultural resource careers. Candidates selected must be U.S. citizens or permanent residents, and Bilingual skills (Spanish/English) are preferred but not required.

Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Hispanic/Latino Presence in the United States
Population Characteristics

Hispanic Wealth

The most recent State of Hispanic Wealth Report measures how Latinos are faring regarding wealth creation. The wealth-building activities benchmarks included real estate acquisition, entrepreneurial growth, savings, and wealth diversification through stock-based financial assets. Latinos' real estate acquisition and historic levels of home equity gains have protected Latino household wealth creation, even during the pandemic, according to the 2021 Report. In addition, it demonstrates the Latino communities' resiliency, and work ethic remains strong. Finally, the study focuses on a few states of interest to this forest family enumeration study, like California, Florida, and Texas. The survey on wealth creation reveals that despite the pandemic's economic impact, Hispanics in these states have reduced debts and increased homeownership from as low as 40 percent in California to nearly 60 percent in Texas.

STATE OF HISPANIC WEALTH REPORT

12 SECTION 5: AN OVERVIEW OF LATINOS IN THE U.S.

POPULATION
- **62.1 MILLION** Latinos in the U.S.
- **18.7%** of the U.S. population
- **51.1%** of U.S. population growth between 2010 and 2020

AGE
- **29.8** Latino median age
- **1 IN 4** Americans under 18 is Latino
- **8.7 YEARS** younger than general population

LABOR FORCE & UNEMPLOYMENT RATE
- **65.6%** 2020 Hispanic labor force participation rate, highest of any demographic
- **90.8%** Latinos are responsible for 90.8% of labor force growth since 2010
- **49.3%** Latinas were 49.3% more likely to be unemployed in 2020 than non-Hispanic White women

HOUSEHOLD INCOME & OCCUPATIONS
- **$55,658** Latino median household income in 2019
- **38.6%** Increase in median Latino household income since 2010
- **25.5%** of Latinos were employed in management or professional occupations in 2020, now the top industry sector

CREDIT
- **688** Latino median credit score
- **51%** of Latinos have a credit score of 670 or above
- **16%** of Latino renters have not purchased a home because they are concerned they won't qualify

EDUCATION
- **17.6%** of Latinos over 25 have a bachelor's degree or higher
- **73.1%** Latino increase in higher educational attainment since 2010
- **3x** Latinos with a college degree have 3 times the net worth of Latinos overall

PURCHASING POWER
- **$1.7 TRILLION** U.S. Latino purchasing power, growing 70% faster than non-Latinos
- **$2.7 TRILLION** total economic output (GDP) of Latinos in 2019
- **7TH** U.S. Latino GDP is the 7th largest economy in the world

SOURCES: 2021 HWP SURVEY, BUREAU OF LABOR STATISTICS, LATINO DONOR COLLABORATIVE, FEDERAL RESERVE, FREDDIE MAC, U.S. CENSUS BUREAU

Figure 23: State of Hispanic Wealth Report (2021)

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Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Hispanic/Latino Presence in the United States
Population Characteristics

Hispanic/Latino Household Income

The median income for Hispanic/Latino households increased by 5.9 percent from 2005–2009 and 2015–2019, from $48,909 to $51,811 (Figure 24). According to the report from U.S. Census, the District of Columbia and 25 states had increased; 22 states did not have statistically significant changes; and Louisiana, Nevada, Vermont, and Puerto Rico experienced decreases in median income for Hispanic households.[xvi]

The 2015-2019 median income for Hispanic/Latino households ranged from $81,227 in the District of Columbia to $20,454 in Puerto Rico. Twelve states and the District of Columbia had median incomes for Hispanic households higher than the U.S. median income. Conversely, 30 states and Puerto Rico had median incomes lower than the U.S. median for Hispanic households.

Figure 24: Change in Median Hispanic/Latino Household Income (2005-09 to 2015-19)

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Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Hispanic/Latino Presence in the United States
Analysis/Summary

Analysis/Summary

The 2020 Census data shows a picture of a nation growing more and more diverse. The country is losing 2.6 percent of its white population,[xvii] and Hispanic Americans accounted for more than half of all U.S. population growth.[xviii] U.S. Hispanic communities account for 62 million individuals—nearly 20 percent of the U.S. population. America's Hispanic population has purchasing power of $2.3 trillion, an amount greater than the GDPs of Brazil, Canada, and Russia.[xix]

All the indicators and measures that link the Hispanic population to relevant impact on most industries and investments studied – population pyramids, naturalization, ownership, representation, and wealth – helped identify opportunity markets. These are useful for studying the future of specific regions and examining historical and current population trends. In recent years, the U.S. population has been affected by sudden changes (for example, deaths due to COVID and lower fertility rates), offering a way to visualize how the future of the U.S. population will be affected. They can also help direct public and private services and programs to regions based on population needs. For any growing industry, including forestry, the distribution between working-age versus young and old (dependent) populations is vital for economic functioning, land investments, and ownership.

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SECONDARY DATA ANALYSIS

Introduction

This study's secondary data analysis offered an opportunity to investigate research questions using large-scale data sets, including comparing under-represented minority forest landowners.

In addition to reviewing and analyzing data from the Bureau of Labor Statistics (BLS), as well as Hispanic population census data, this enumeration study collected data from the following sources:

- USDA Census of Agriculture (2017)
    - Hispanic Operations and Producers
    - Acres and Woodland Operations (Total, Excluding Pastured, Pastured)
- U.S. Census
    - Rural and Urban Populations (2010)
- Forest Inventory and Analysis (FIA)
    - Individual and family, including trusts, estates, and family partnerships (Indicator 45)
    - 2016 and 2012 Annual County Estimates: Area of Forest Land; Area of Timber Land
- NRCS Protracts Data (FY2021, QRTR2)
- NRCS RegStats
    - 2012 NRCS; 2016-18 FSA

The secondary data collection and analysis followed a funnel approach. Hence, the initial exploration identified key indicators relevant to the enumeration, plus challenges with data sources. Then, the investigation focused on narrowing data indicators based on relationships among data sources that have a high connection to the possible presence of Hispanic Forest Landowners.

Figures and tables on the following pages illustrate the various tools used to prepare, sort, and analyze the data. The data illustrations are not meant to be seen or used as a comprehensive analysis; the state of New Mexico is used to analyze data at the county level. In many ways, the state of New Mexico is the definition of diversity. Statewide, 49.3 percent of the population identifies as Hispanic or Latino (of any race), according to the 2020 U.S. Census. As previously stated, 2019 ACS 5-Year Estimates are used in this study to ensure data can be analyzed for all U.S. counties and parishes.

Tableau Descriptive Analysis
The data indicator comparison and illustrations below, using Tableau, include the following three segments:

1. Hispanic Operators by state and Woodland Operations by state (pages 45 to 48)
2. Percent of Hispanic Population by state and Acres of Woodland by state (pages 49 to 53)
3. Percent of Hispanic Population by state and Woodland Operations by state (page 54)
4. Hispanic Population vs. Hispanic Operations (page 55)

NOTE*: In the following pages, the U.S. states identified in* red font *are those that the study found relevant to the likely presence of Hispanic Forest Landowners.*

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Tableau

USDA Census of Agriculture

State/County Level: Hispanic Operations (y) vs. Woodland Operations (x) (Green Tabs)

Internal Data Sources
- TABLEAU: Forestry Indicators
- EXCEL: Forestry Indicators, 2017 USDA Census of Agriculture (for state data)

Data Narration:
- This data illustrates the number of Hispanic Operations (y-axis) in relation to Woodland Operations (x-axis) (Figure 25)
- The size of the circles is connected and proportional to the Hispanic population in the state (2019 ACS 5-year Estimates)
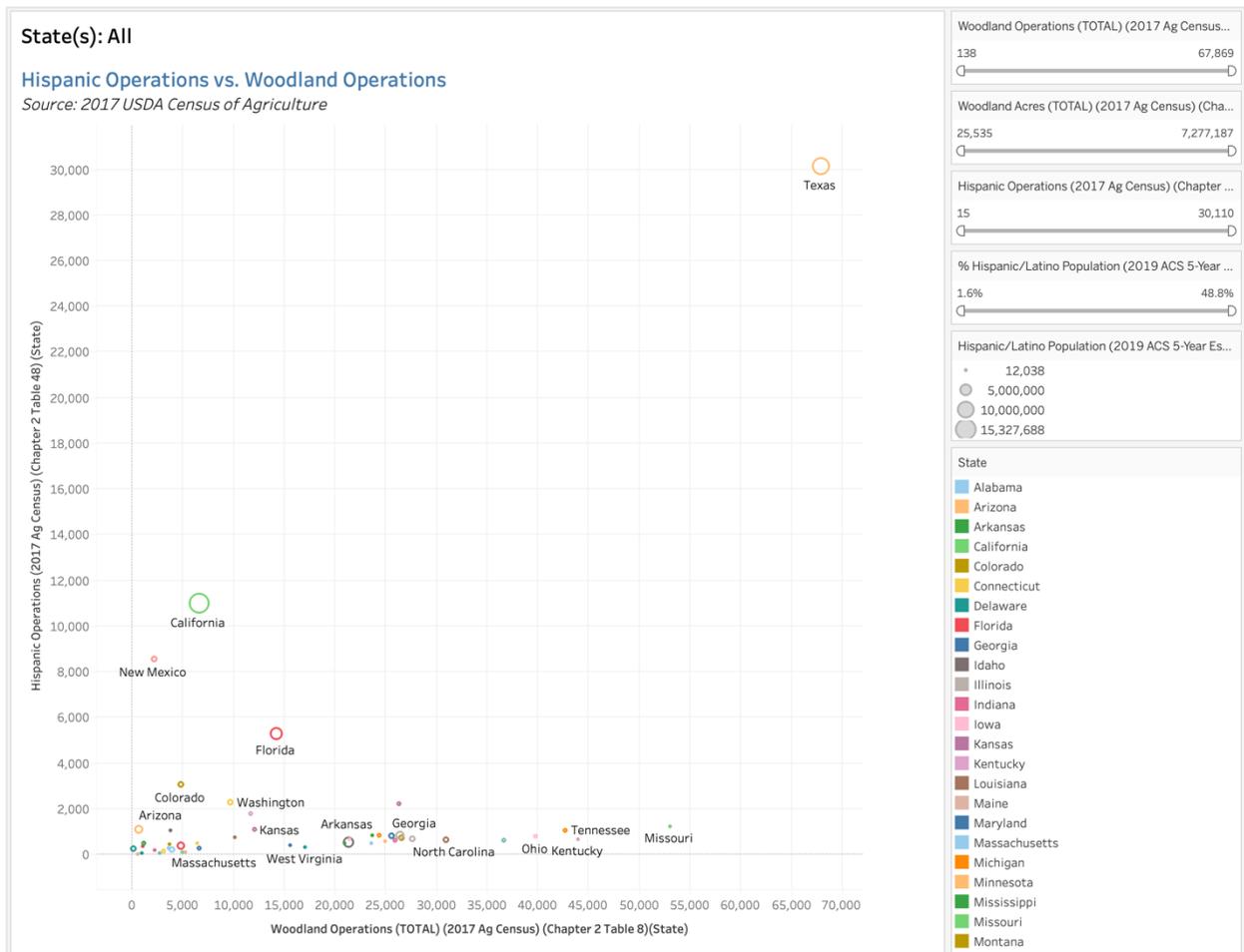
Figure 25: Hispanic Operations vs. Woodland Operations (2017 USDA Census of Agriculture)

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- The following image illustrates the same data *without* Texas, California, New Mexico, and Florida which are the top four states in terms of Hispanic Operations. Only Texas has a relatively high number of Woodland Operations, 67,869; Florida has 14,274, California has 6,595, and New Mexico 2,167 (Figure 26).

- Based on Woodland Operations *alone*, states to potentially investigate are Missouri, Tennessee, Ohio, Kentucky, Wisconsin, Pennsylvania.
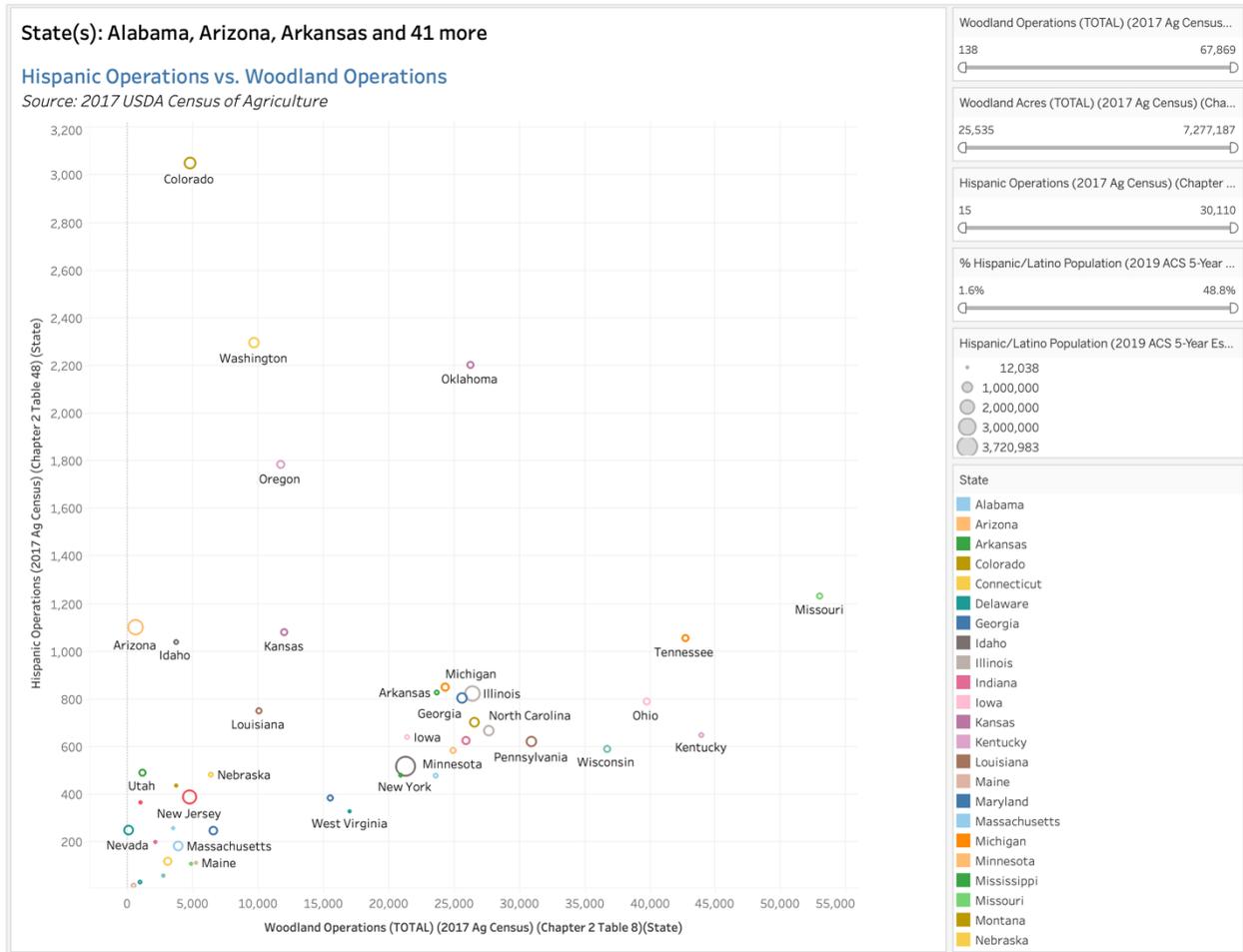
Figure 26: Hispanic Operations vs. Woodland Operations, Excluding TX, CA, NM, FL (2017 USDA Census of Agriculture)

In order to narrow down the number of states to examine, states were filtered using the following criteria:

- Percent Hispanic/Latino - Population of 10 percent or more

Figure 27 illustrates the states that have a Hispanic/Latino population of 10 percent or more, excluding Texas, California, New Mexico, and Florida.

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Secondary Data Analysis

Tableau
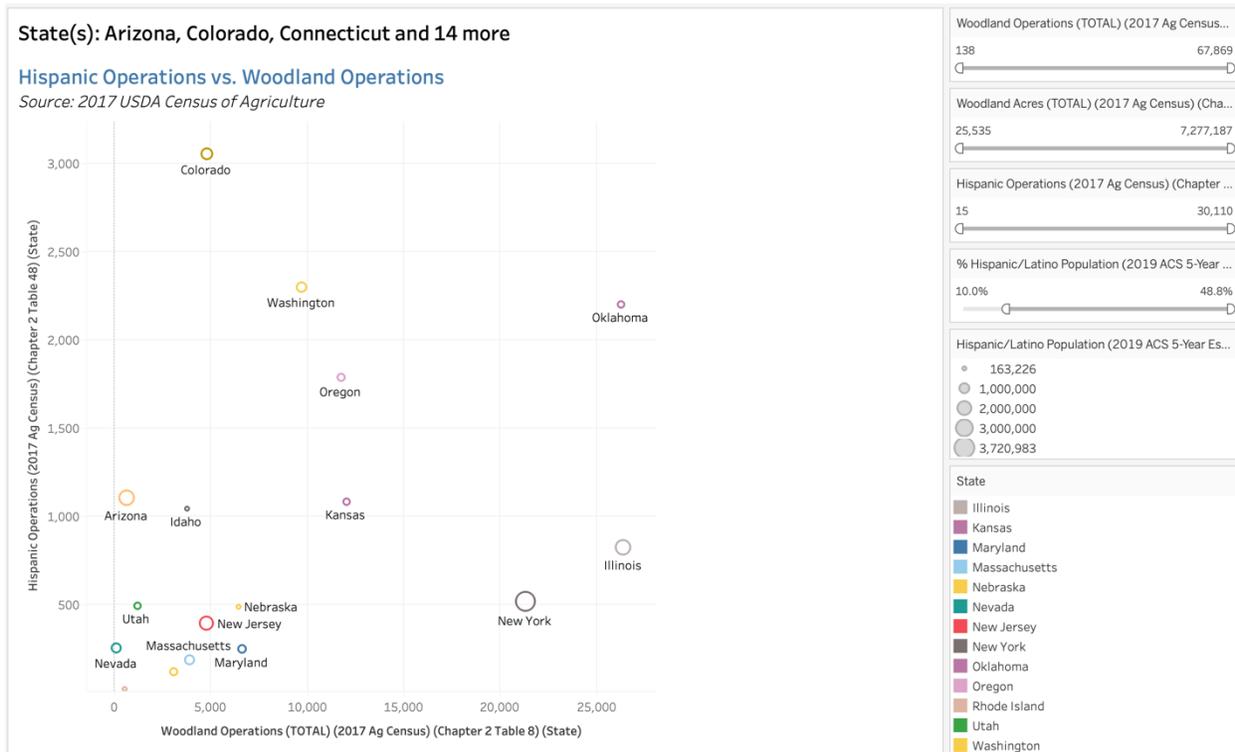
Figure 27: Hispanic Op vs. Woodland Op (Excl. TX, CA, NM, FL) (10%+ Hispanic Population) (2017 USDA Census of Agriculture)

Table 9 provides a list of all states with a Hispanic/Latino population of at least 10 percent or more. The data is sorted in descending order by the number of Hispanic Operations. The top eight states with the highest number of Hispanic Operations (and at a minimum a Hispanic/Latino population of at least 10 percent) are: Texas, California, New Mexico, Florida, Colorado, Washington, Oklahoma, and Oregon.

States with a Hispanic/Latino Population of 10% or More
Data Sorted in Descending Order by Hispanic Operations

	Woodland Operations (TOTAL) (2017 Ag Census) (Ch 2 Tab 8)	*Hispanic Operations (2017 Ag Census) (Ch 2 Table 48)*	Hispanic Producers (2017 Ag Census) (Ch 2 Table 48)	% Hispanic / Latino Population (2019 ACS 5-Year Estimates)	Hispanic / Latino Population (2019 ACS 5-Year Estimates)	Woodland Acres (TOTAL) (2017 Ag Census) (Ch 2 Tab 8)
Texas	67,869	*30,110*	41,143	39.3%	11,116,881	7,277,187
California	6,595	*11,002*	14,597	39.0%	15,327,688	1,847,551
New Mexico	2,167	*8,549*	12,212	48.8%	1,020,817	2,415,780
Florida	14,274	*5,267*	7,121	25.6%	5,346,684	2,514,794
Colorado	4,822	*3,050*	3,765	21.5%	1,208,172	1,308,918
Washington	9,718	*2,295*	2,947	12.7%	937,579	2,044,726
Oklahoma	26,287	*2,200*	2,621	10.6%	417,906	2,469,604
Oregon	11,754	*1,784*	2,083	13.0%	537,217	1,614,345
Arizona	677	*1,102*	1,482	31.3%	2,208,663	651,695
Kansas	12,048	*1,079*	1,253	11.9%	345,680	651,590
Idaho	3,767	*1,039*	1,258	12.5%	215,476	524,137
Illinois	26,396	*821*	934	17.1%	2,186,387	1,469,302
New York	21,314	*517*	606	19.0%	3,720,983	1,450,284
Utah	1,199	*492*	558	14.0%	434,832	324,191

States with a Hispanic/Latino Population of 10% or More					
Data Sorted in Descending Order by Hispanic Operations					
	Woodland Operations (TOTAL) (2017 Ag Census) (Ch 2 Tab 8)	*Hispanic Operations (2017 Ag Census) (Ch 2 Table 48)*	**Hispanic Producers** (2017 Ag Census) (Ch 2 Table 48)	**% Hispanic / Latino Population** (2019 ACS 5-Year Estimates)	**Hispanic / Latino Population** (2019 ACS 5-Year Estimates)	**Woodland Acres (TOTAL)** (2017 Ag Census) (Ch 2 Tab 8)
Nebraska	6,433	*482*	540	10.9%	208,271	352,535
New Jersey	4,795	*390*	465	20.2%	1,794,736	145,302
Nevada	138	*249*	322	28.7%	853,041	80,718
Maryland	6,640	*247*	267	10.1%	606,482	316,647
Massachusetts	3,911	*183*	207	11.8%	809,179	194,189
Connecticut	3,105	*118*	134	16.1%	574,240	113,355
Rhode Island	546	*15*	15	15.4%	163,226	25,535

Table 9: States with a Hispanic/Latino Population of 10% or More

Figure 28 illustrates the number of Hispanic Operations, as well as the percentage of Hispanic/Latino population (both on the y-axis) in relation to the number of Woodland Operations (on the x-axis) on a county level for the state of New Mexico, the third-highest state in terms of Hispanic/Latino Operations.
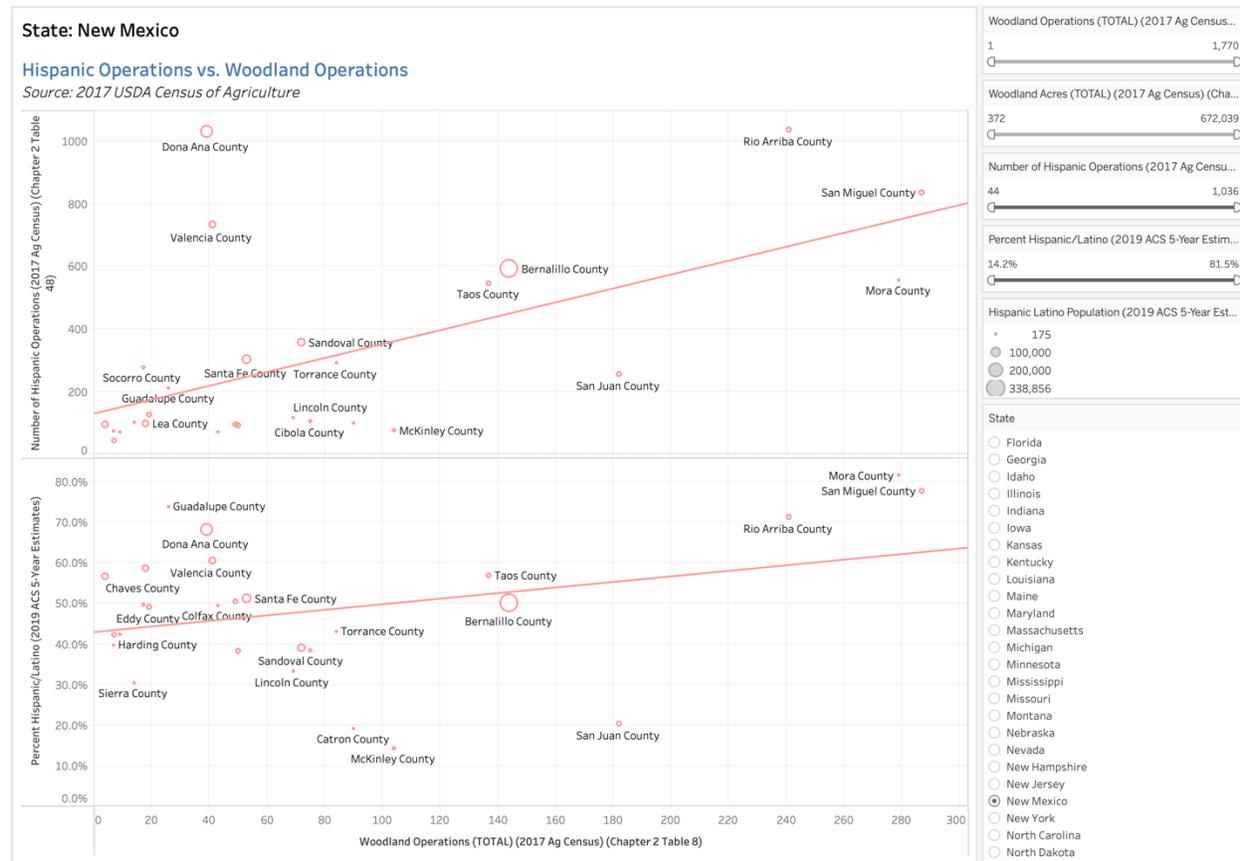
Figure 28: New Mexico: Hispanic Operations vs. Woodland Operations (2017 USDA Census of Agriculture)

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Figure 29 illustrates the total Hispanic Operations in New Mexico by county. Based on the 2017 USDA Census of Agriculture, Rio Arriba and Doña Ana Counties each report having more than 1,000 Hispanic Operations, 1,036 and 1,029, respectively.

Figure 29: New Mexico: Hispanic Operations (2017 USDA Census of Agriculture)

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U.S. Census & USDA Census of Agriculture

State/County Level: Percent Hispanic Population (y) vs. Acres of Woodland (x) (Yellow Tabs)

Internal Data Sources
- TABLEAU: Forestry Indicators
- EXCEL: Forestry Indicators

Data Narration:
- This data compares the percent of Hispanic population in a state or county (U.S. census) (y-axis), in relation to the number of Woodland Acres (agricultural census) in a state or county (x-axis) (Figure 30).
- The size of the circles indicates the total number of Hispanic population in the state (2019 ACS 5-Year Estimates). For example, California reports a Hispanic population of 15.3M while New Mexico has a Hispanic population of 1.02M.
- New Mexico has the highest percentage of Hispanics, approximately 48.8 percent, and 2.4M acres of woodland.
- Texas has the highest number of acres of woodland, approx. 7.3M acres, and 33.9 percent of the population is Hispanic.
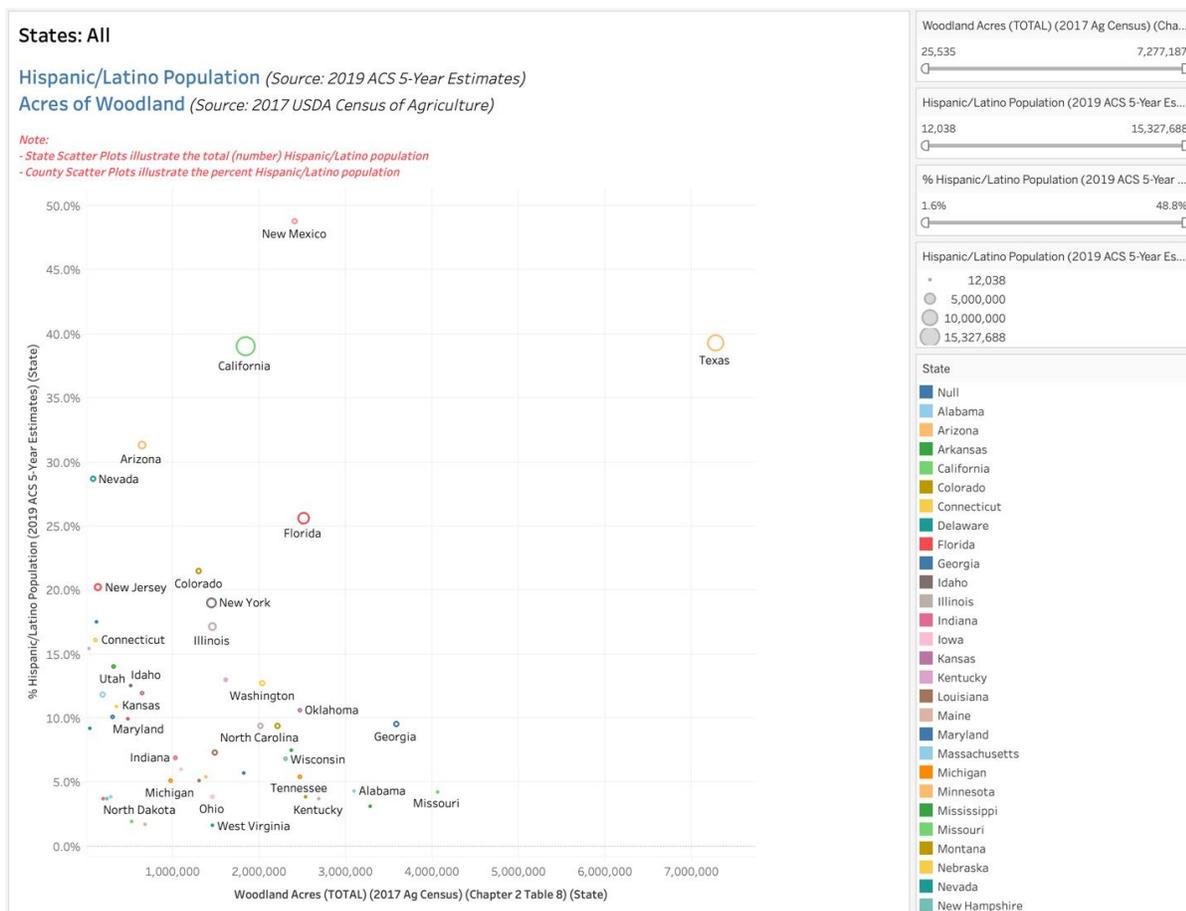
Figure 30: Hispanic Population vs. Acres of Woodland (2019 ACS 5-Year Estimates, 2017 USDA Census of Agriculture)

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Secondary Data Analysis

Tableau

In order to narrow down the number of states to examine, states were filtered using the following criteria:

- Percentage Hispanic/Latino Population - 10 percent or more

Figure 31 illustrates the states that have a Hispanic/Latino population of 10 percent or more, excluding Texas, California, and New Mexico.

Figure 31: Hispanic Population vs. Acres of Woodland (Excluding TX, CA, NM) (10%+ Hispanic Population) (2019 ACS 5-Year Estimates, 2017 USDA Census of Agriculture)

Secondary Data Analysis
Tableau

Table 10 provides a list of all states with a Hispanic population of at least 10 percent or more. The data is sorted in descending order by the number of Woodland Acres. The top eight states with the highest number of Woodland Acres (and at a minimum, a Hispanic population of at least 10 percent) are: Texas, Florida, Oklahoma, New Mexico, Washington, California, Oregon, and Illinois.

States with a Hispanic/Latino Population of 10% or More *Data Sorted in Descending Order by Woodland Acres*			
	Woodland Acres (TOTAL) *(2017 Ag Census) (Ch 2 Tab 8) (State)*	**% Hispanic/Latino Population** (2019 ACS 5-Year Estimates) (State)	**Hispanic/Latino Population** (2019 ACS 5-Year Estimates) (State)
Texas	*7,277,187*	39.3%	11,116,881
Florida	*2,514,794*	25.6%	5,346,684
Oklahoma	*2,469,604*	10.6%	417,906
New Mexico	*2,415,780*	48.8%	1,020,817
Washington	*2,044,726*	12.7%	937,579
California	*1,847,551*	39.0%	15,327,688
Oregon	*1,614,345*	13.0%	537,217
Illinois	*1,469,302*	17.1%	2,186,387
New York	*1,450,284*	19.0%	3,720,983
Colorado	*1,308,918*	21.5%	1,208,172
Arizona	*651,695*	31.3%	2,208,663
Kansas	*651,590*	11.9%	345,680
Idaho	*524,137*	12.5%	215,476
Nebraska	*352,535*	10.9%	208,271
Utah	*324,191*	14.0%	434,832
Maryland	*316,647*	10.1%	606,482
Massachusetts	*194,189*	11.8%	809,179
New Jersey	*145,302*	20.2%	1,794,736
Connecticut	*113,355*	16.1%	574,240
Nevada	*80,718*	28.7%	853,041
Rhode Island	*25,535*	15.4%	163,226

Table 10: States with a Hispanic/Latino Population of 10% or More

Figure 32 illustrates the percentage Hispanic/Latino population (on the y-axis) in relation to the number of Woodland Acres (on the x-axis) on a county level for the state of New Mexico, the fourth highest state in terms of Woodland Acres.
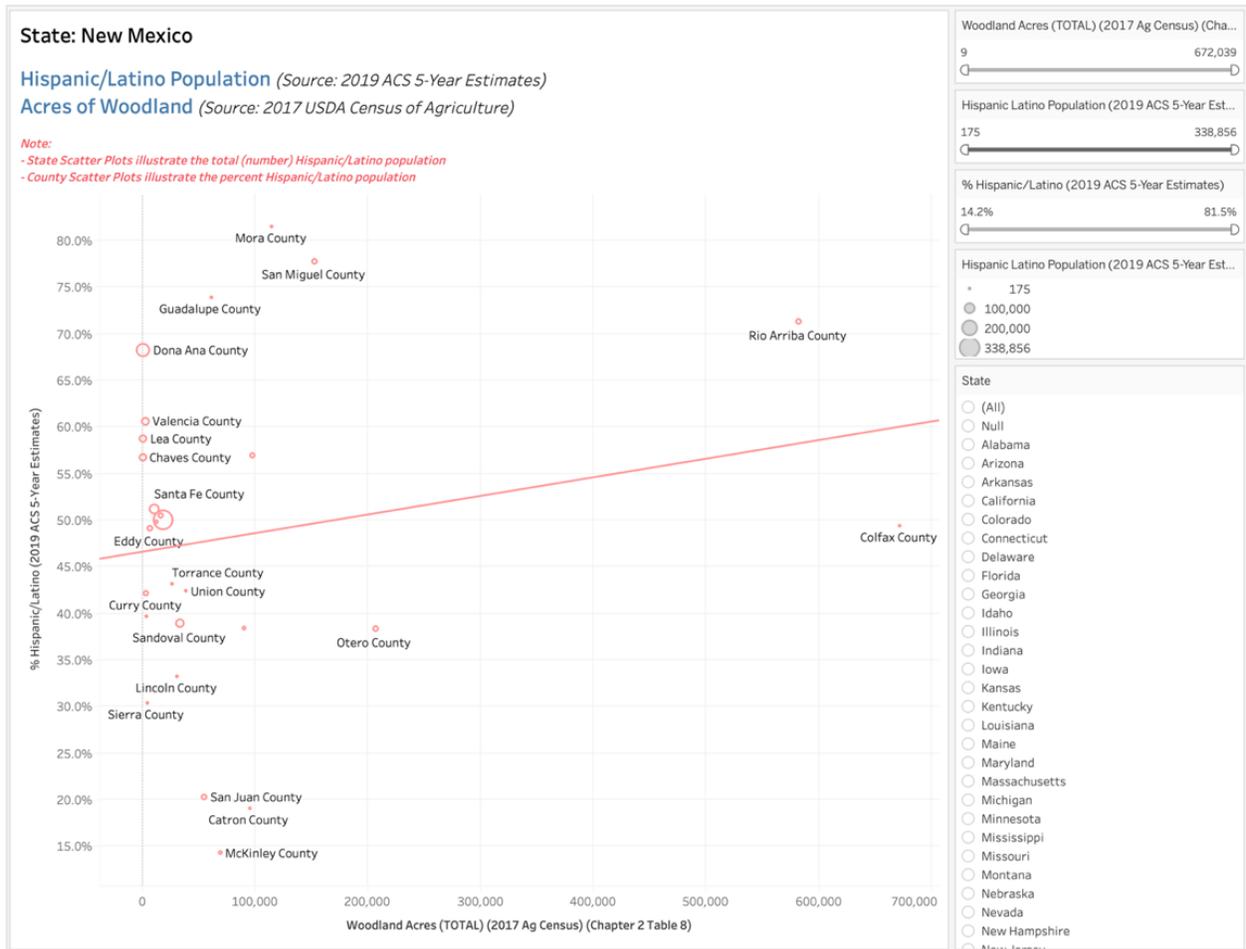
Figure 32: New Mexico: Hispanic Population vs. Acres of Woodland (2019 ACS 5-Year Estimates, 2017 USDA Census of Agriculture)

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Figure 33 illustrates the total number of Woodland Acres in New Mexico by county. Based on the 2017 USDA Census of Agriculture, Colifax County and Rio Arriba County each report having more than 500,000 Woodland Acres, 672,039 and 582,409, respectively.
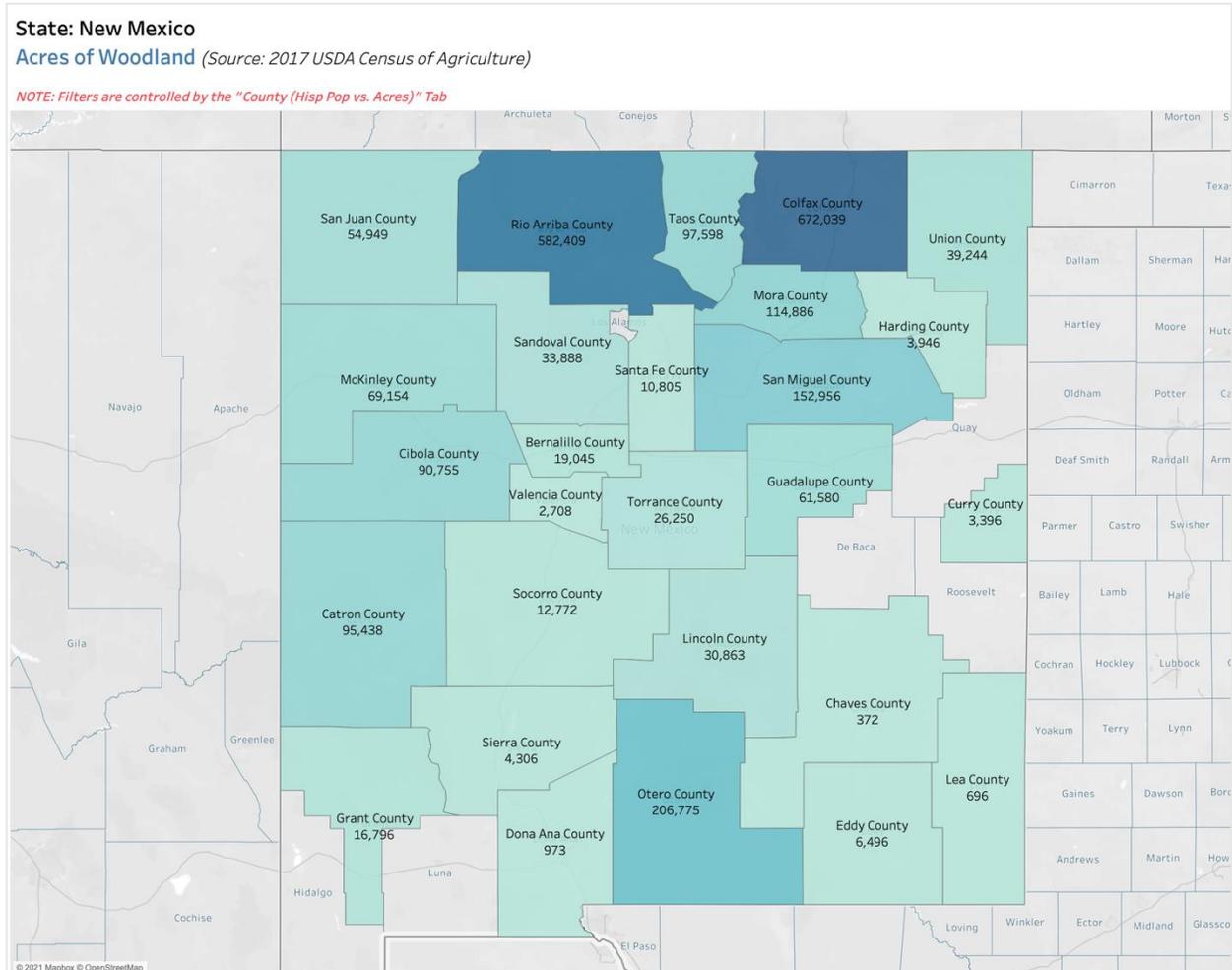
Figure 33: New Mexico: Acres of Woodland (2017 USDA Census of Agriculture)

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State/County Level: Percentage Hispanic Population (y) vs. Woodland Operations (x) (Red Tabs)

Internal Data Sources
- TABLEAU: Forestry Indicators
- EXCEL: Forestry Indicators

Data Narration:
- This data compares the percentage Hispanic population in a state or county (U.S. census) (y-axis), in relation to the number of Woodland Operations (ag census) in a state or county (x-axis) (Figure 34).
- The size of the circles is connected to the Hispanic population in the state (2019 ACS 5-Year Estimates).
- New Mexico has the highest percentage of Hispanics, approximately 48.8 percent, and 2,167 woodland operations.
- Texas has the highest number of woodland operations, 67,869 and 33.9 percent of the population is Hispanic.
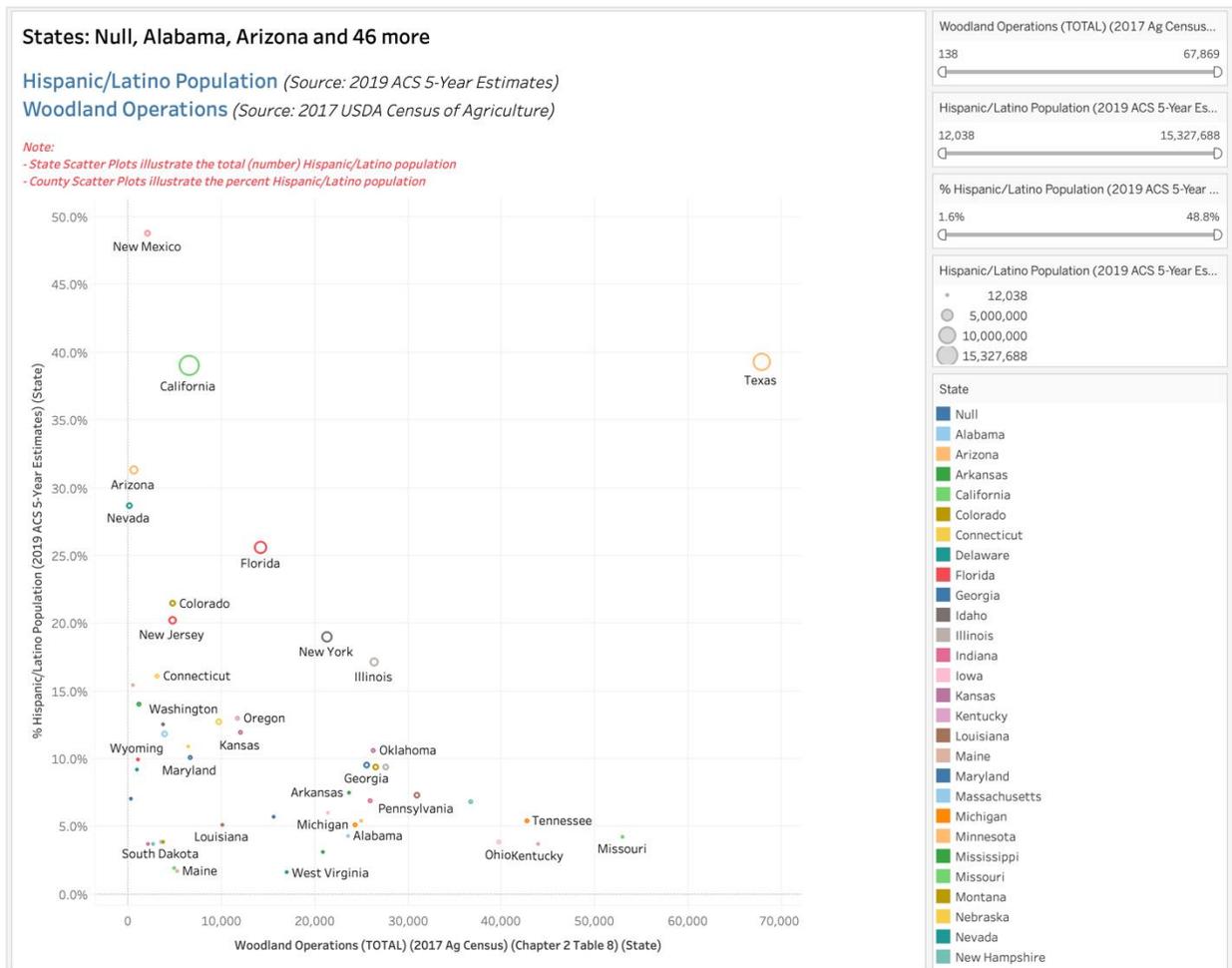
Figure 34: Hispanic Population vs. Woodland Operations (2019 ACS 5-Year Estimates, 2017 USDA Census of Agriculture)

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State and County Level: Number and Percent Hispanic Population (y) vs. Hispanic Operations (x) (Blue Tabs)

Internal Data Sources
- TABLEAU: Forestry Indicators
- EXCEL: Forestry Indicators

Data Narration:
- This data compares the number ***and*** percentage Hispanic population in a state or county (U.S. census) (y-axis), in relation to the number of Hispanic Operations (ag census) in a state or county (x-axis) (Figure 35).
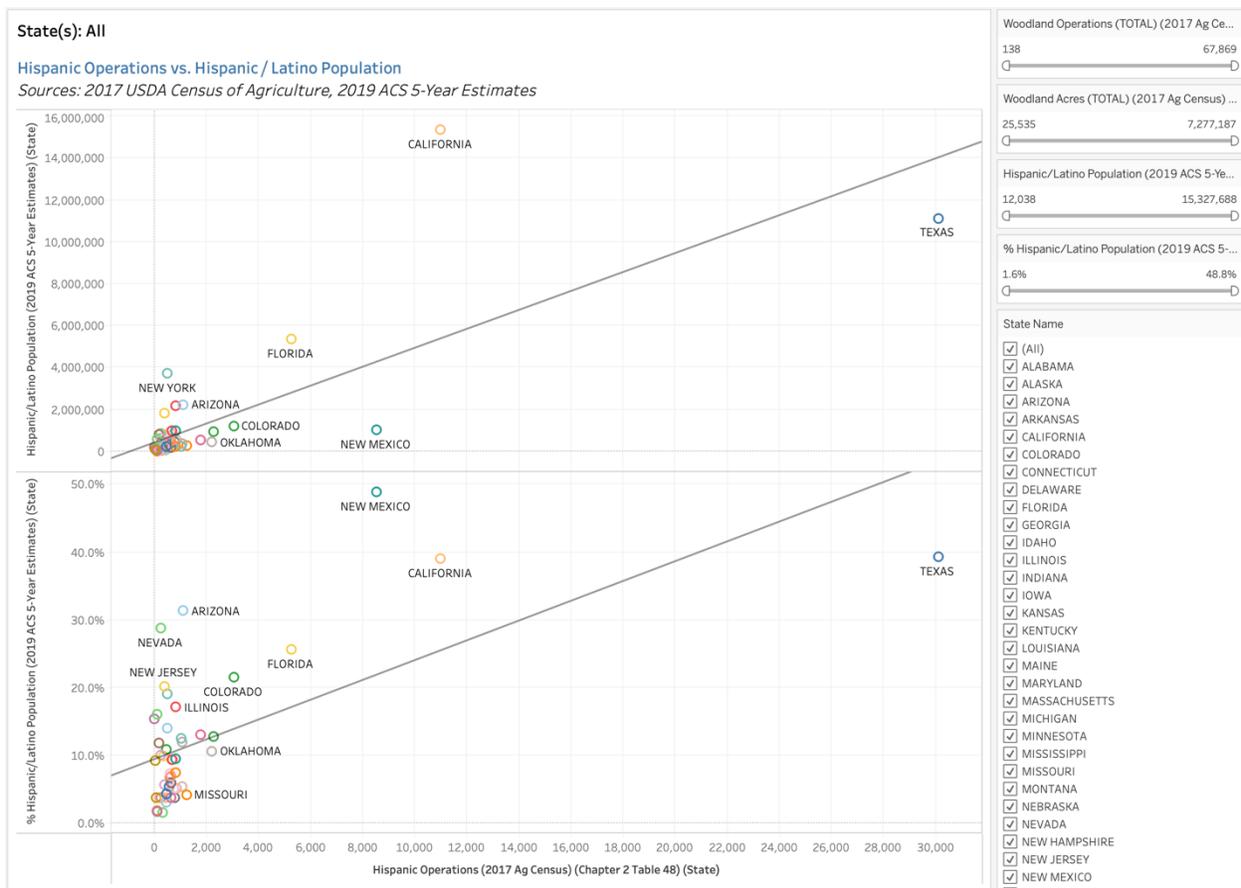
Figure 35: Number and Percentage Hispanic/Latino Population vs. Hispanic Operations (2019 ACS 5-Year Estimates, 2017 USDA Census of Agriculture)

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Secondary Data Analysis

Tableau

Figure 36 illustrates the percentage Hispanic population (on the y-axis) in relation to the number of Hispanic Operations (on the x-axis) for all states excluding California, Colorado, Florida, New Mexico, Oklahoma, Oregon, Texas, Washington.
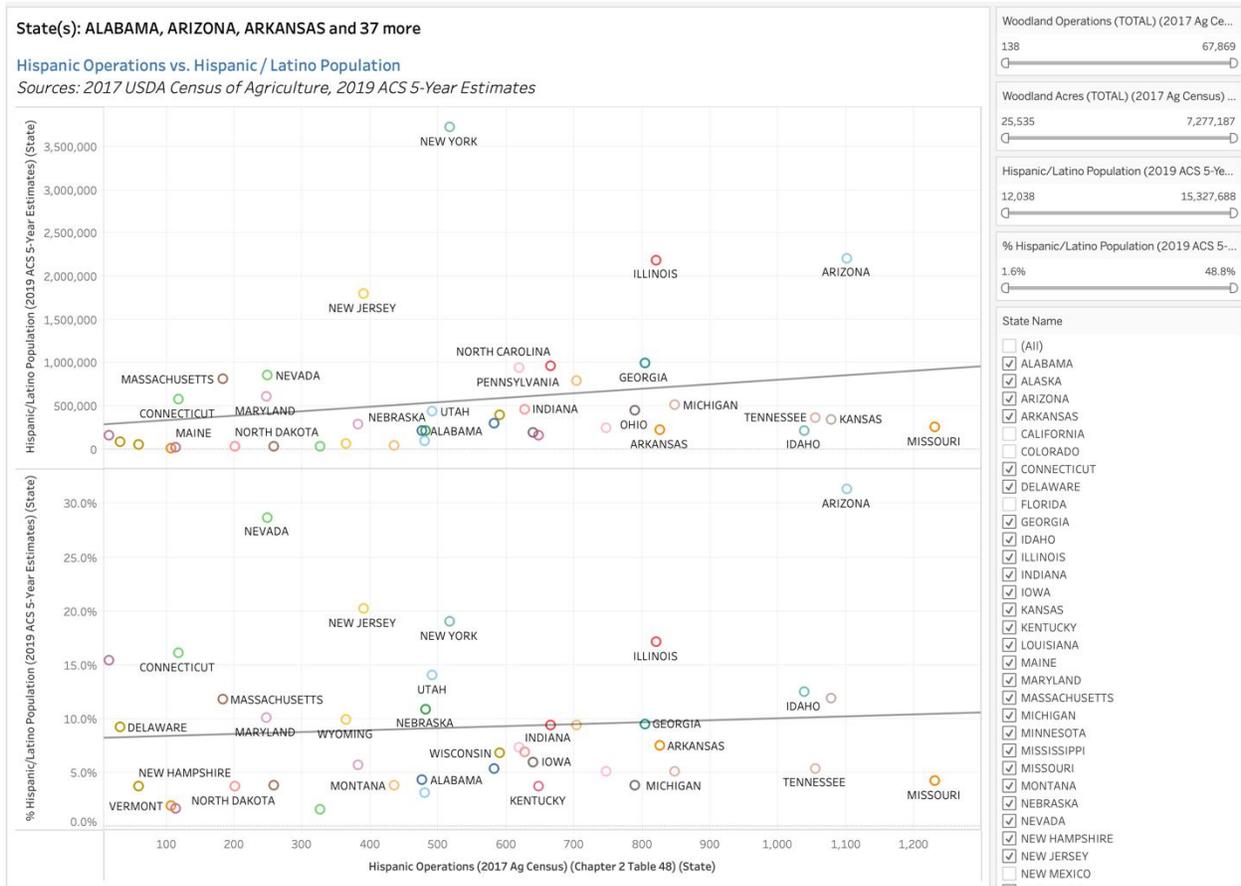
Figure 36: Number and Percentage Hispanic/Latino Population vs. Hispanic Operations (Excluding CA, CO, FL, NM, OK, OR, TX, WA) (2019 ACS 5-Year Estimates, 2017 USDA Census of Agriculture)

Figure 37 illustrates the percentage Hispanic population (on the y-axis) in relation to the number of Hispanic Operations (on the x-axis) for the following states only: California, Colorado, Florida, New Mexico, Oklahoma, Oregon, Texas, Washington.
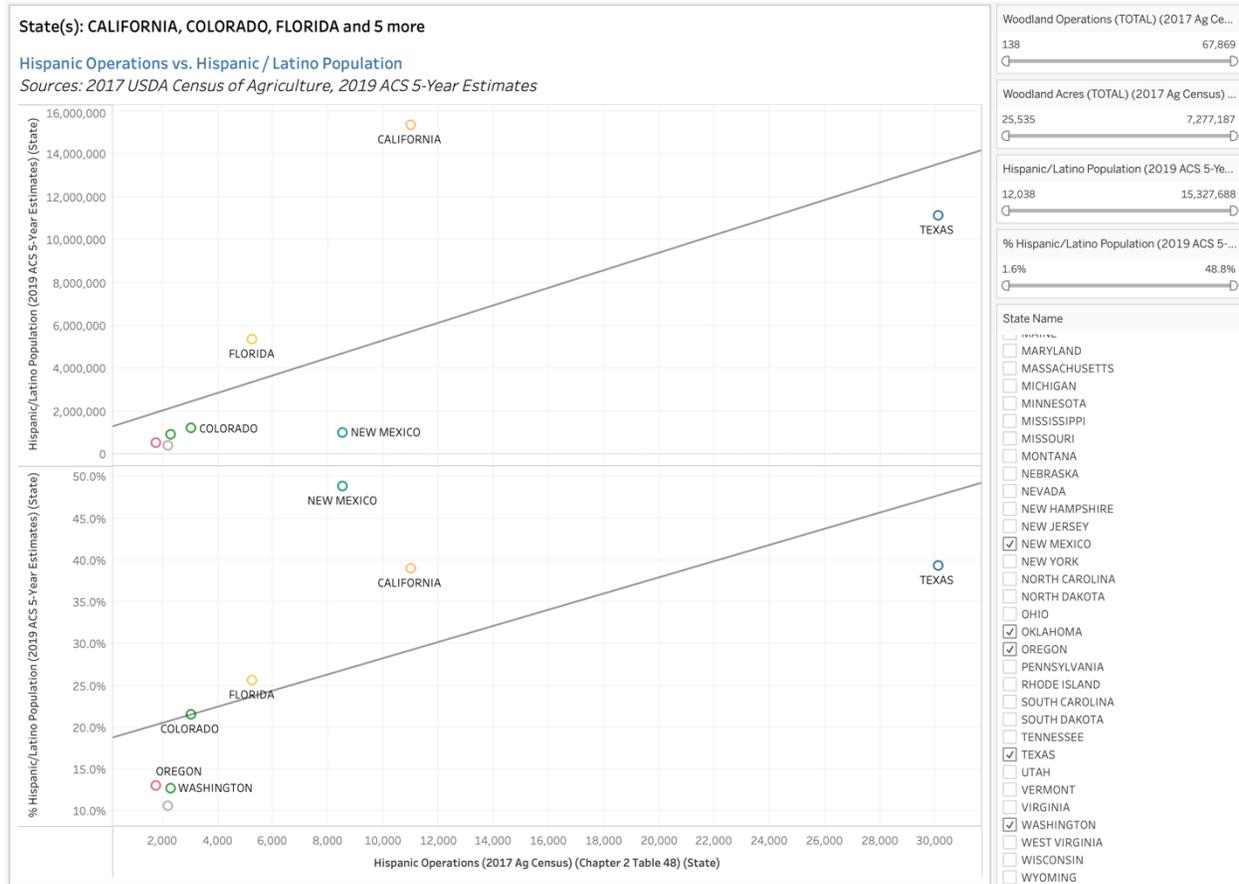
Figure 37: Number and Percentage Hispanic/Latino Population vs. Hispanic Operations (ONLY CA, CO, FL, NM, OK, OR, TX, WA) (2019 ACS 5-Year Estimates, 2017 USDA Census of Agriculture)

NOTE: Data can be examined on a county level as well as USDA Region level.

ProTracts Data (Yellow Tabs)

ProTracts is an NRCS web-enabled application that streamlines the application and contracting process for conservation programs. mano-Y-ola's team obtained NRCS' Program Contracts System's (ProTracts) data for crucial states on relevant forest conservation practices. The data is valuable since it indicates ethnicity, location (County/Parish-specific), forest-related conservation, and management practices approved by the agency. We know with certainty how many of these contracts in the system are registered to HFLOs or Operators.

Internal Data Sources
- TABLEAU: Forestry Indicators
- EXCEL: Forestry Indicators, ProTracts Data

Data Narration:
- This data compares the number of active or completed contracts for Hispanic producers in eight states (CA, CO, FL, NM, OK, OR, TX, and WA) (all practices or select practices) (x-axis) to the following (Figure 38):
  - Percentage Hispanic population in a state or county (U.S. census) (y-axis)
  - Number of Hispanic Operations (Ag census) in a state or county (y-axis)
  - Number of Woodland Operations (Ag census) in a state or county
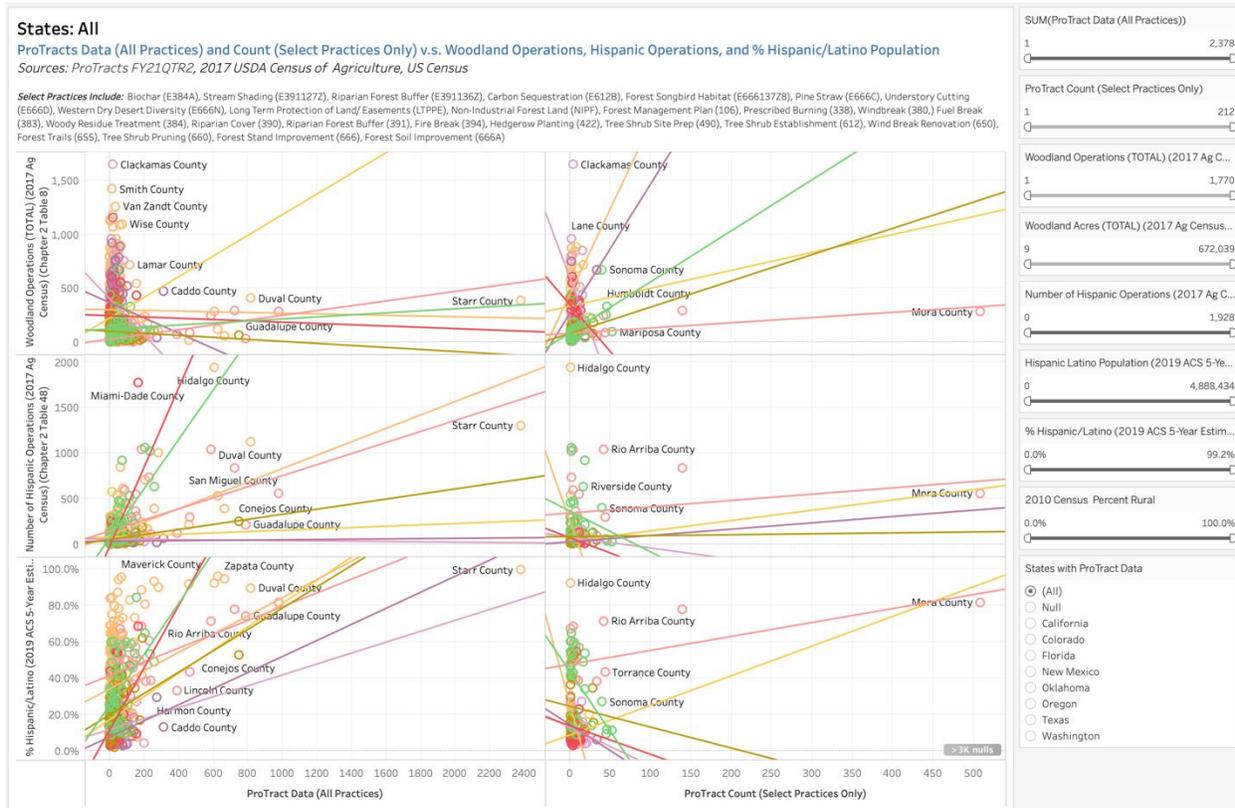
Figure 38: Protracts Data (FY21QTR2) vs. Hispanic Population, Hispanic Operations, and Woodland Operations (2019 ACS 5-Year Estimates, 2017 USDA Census of Agriculture)

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Secondary Data Analysis

Tableau

Data can be filtered by state (for which ProTracts data was received), or by any of the filters on the right of the tableau workbook. Data can then be exported to Excel; see sample of New Mexico below (Figures 39 and 40 & Table 11).
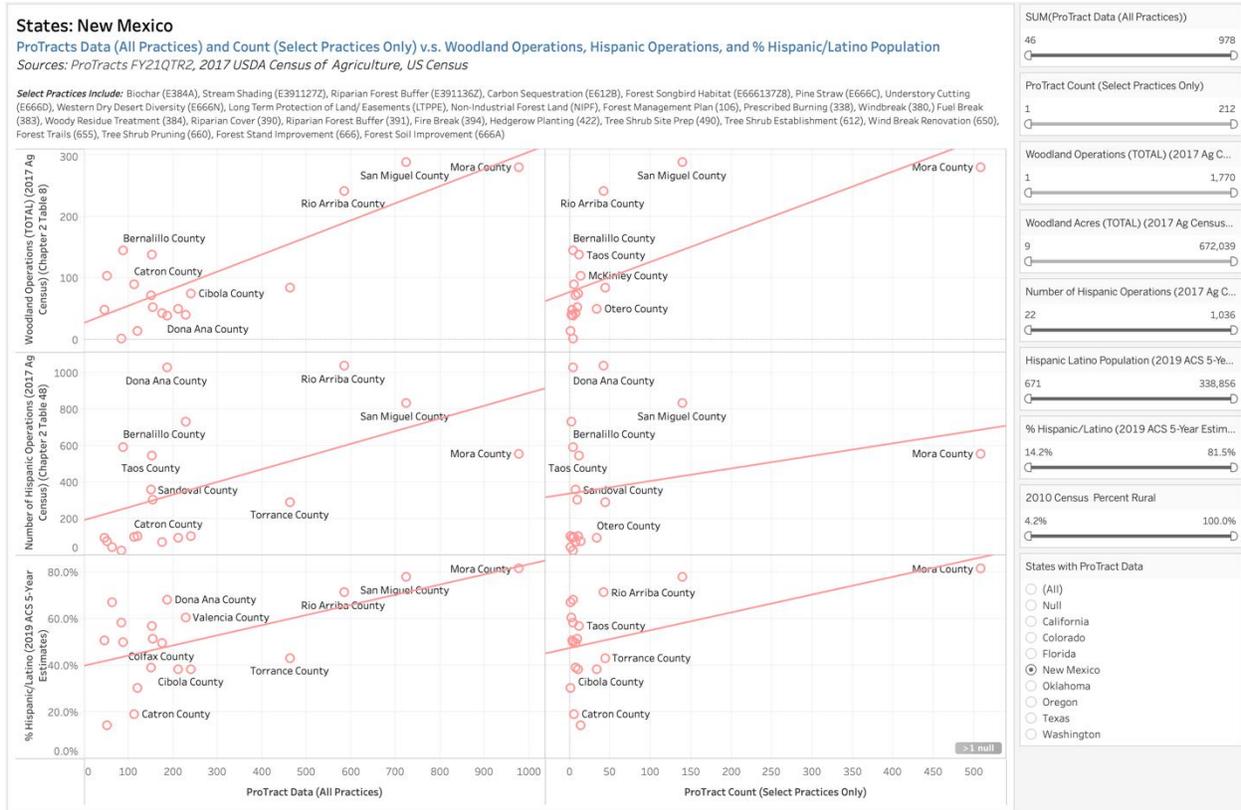
Figure 39: Protracts Data (FY21QTR2) vs. Hispanic Population, Hispanic Operations, and Woodland Operations: New Mexico (2019 ACS 5-Year Estimates, 2017 USDA Census of Agriculture)

States: New Mexico
ProTracts Data (All Practices) and Count (Select Practices Only) v.s. Woodland Operations, Hispanic Operations, and % Hispanic/Latino Population
Sources: ProTracts FY21QTR2, 2017 USDA Census of Agriculture, US Census

Select Practices Include: Biochar (E384A), Stream Shading (E391127Z), Riparian Forest Buffer (E391136Z), Carbon Sequestration (E612B), Forest Songbird Habitat (E666137Z8), Pine Straw (E666C), Understory Cutting (E666D), Western Dry Desert Diversity (E666N), Long Term Protection of Land/ Easements (LTPPE), Non-Industrial Forest Land (NIPF), Forest Management Plan (106), Prescribed Burning (338), Windbreak (380,) Fuel Break (383), Woody Residue Treatment (384), Riparian Cover (390), Riparian Forest Buffer (391), Fire Break (394), Hedgerow Planting (422), Tree Shrub Site Prep (490), Tree Shrub Establishment (612), Wind Break Renovation (650), Forest Trails (655), Tree Shrub Pruning (660), Forest Stand Improvement (666), Forest Soil Improvement (666A)

State	County	Woodland Operations (TOTAL) (2017 Ag Census) (Ch..	Woodland Acres (TOTAL) (2017 Ag Census) (Chapter 2 Tabl..	Number of Hispanic Producers (2017 Ag Census) (Ch..	Number of Hispanic Operations (2017 Ag Censu..	Hispanic Latino Population (2019 ACS 5-Year Estimat..	% Hispanic/Latino (2019 ACS 5-Year Estimat..	ProTract Data (All Practices)	ProTract Count (Select Practices Only)	2010 Census Percent Rural	FIA Plot Data (Indicator 45)
New Mexico	Bernalillo County	144	19,045	815	591	338,856	50.0%	87	5	4.2%	130
	Catron County	90	95,438	141	98	671	19.0%	112	6	100.0%	775
	Cibola County	75	90,755	140	104	10,316	38.4%	241	11	55.3%	512
	Colfax County	43	672,039	117	69	6,011	49.4%	175	8	52.4%	428
	Dona Ana County	39	973	1,405	1,029	147,491	68.3%	187	5	19.3%	425
	Grant County	49	16,796	140	94	13,969	50.5%	46	4	42.4%	421
	Hidalgo County	2		25	22	2,497	58.1%	83	5	100.0%	314
	Luna County			52	44	16,151	67.1%	63	1	40.6%	316
	McKinley County	104	69,154	90	75	10,320	14.2%	52	14	57.4%	635
	Otero County	50	206,775	122	91	25,315	38.3%	211	34	29.6%	750
	Rio Arriba County	241	582,409	1,601	1,036	27,896	71.2%	585	42	49.8%	696
	San Miguel County	287	152,956	1,250	834	21,563	77.7%	724	140	46.9%	413
	Sandoval County	72	33,888	578	357	55,525	38.9%	150	8	17.1%	436
	Santa Fe County	53	10,805	488	302	76,446	51.2%	155	10	25.2%	187
	Sierra County	14	4,306	141	102	3,348	30.4%	121	1	34.0%	473
	Taos County	137	97,598	799	546	18,652	56.9%	152	12	58.4%	247
	Torrance County	84	26,250	393	290	6,687	43.1%	464	44	98.8%	320
	Valencia County	41	2,708	961	732	46,056	60.6%	228	3	16.7%	116

Figure 40: Protracts Data (FY21QTR2) vs. Hispanic Population, Hispanic Operations, and Woodland Operations: New Mexico (2019 ACS 5-Year Estimates, 2017 USDA Census of Agriculture)

Secondary Data Analysis

Tableau

Name	Code (only)
ProTracts Practice Names Selected for Enumeration Study	
Souce: Special Data Request from NRCS in California	
Biochar E384A	E384A
Stream Shading E391127Z	E391127Z
Riparian Forest Buffer E391136Z	E391136Z
Carbon Sequestration E612B	E612B
Forest Songbird Habitat E666137Z8	E666137Z8
Pine Straw E666C	E666C
Understory Cutting E666D	E666D
Western Dry Desert Diversity E666N	E666N
Long Term Protection of Land/ Easements LTPPE	LTPPE
Non-Industrial Forest Land NIPF	NIPF
Forest Management Plan 106	106
Prescribed Burning 338	338
Windbreak 380	380
Fuel Break 383	383
Woody Residue Treatment 384	384
Riparian Cover 390	390
Riparian Forest Buffer 391	391
Fire Break 394	394
Hedgerow Planting 422	422
Tree Shrub Site Prep 490	490
Tree Shrub Establishment 612	612
Wind Break Renovation 650	650
Forest Trails 655	655
Tree Shrub Pruning 660	660
Forest Stand Improvement 666	666
Forest Soil Improvement 666A	666A

Table 11: ProTracts Practice Names Selected for Enumeration Study

NOTE: Appendix A provides a copy of the raw data received.

Percentage Forested Area (FIA Data) (Purple Tabs)

Tableau is set up to examine either the percentage of forested area ***by county*** against the following indicators (Figure 41):

- Woodland Operations (USDA Census of Agriculture)
- Hispanic Operations (USDA Census of Agriculture)
- Percent Hispanic Latino Population (U.S. Census)
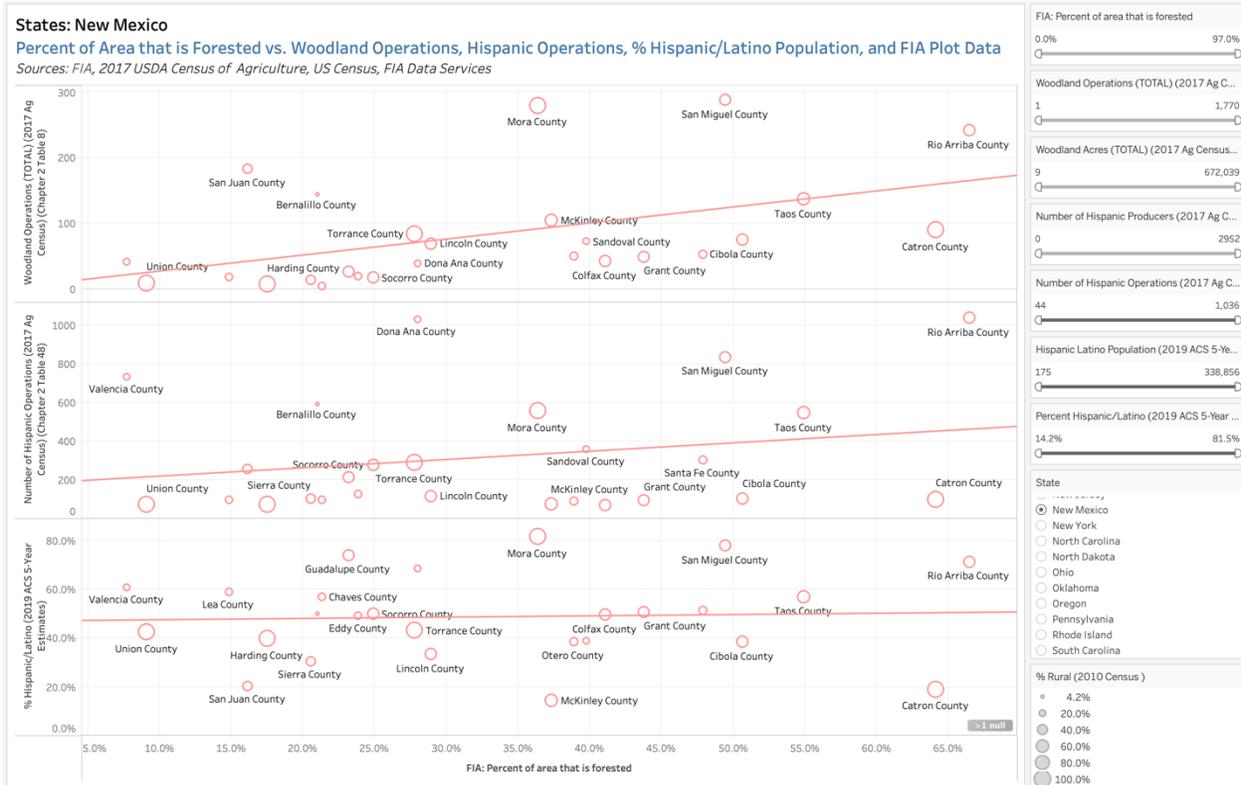
Figure 41: FIA Percentage of Forested Land vs. Hispanic Population, Hispanic Operations, and Woodland Operations: New Mexico (2016/2012 FIA Data Services Annual County Estimates, 2019 ACS 5-Year Estimates, 2017 USDA Census of Agriculture)

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ArcGIS

The enumeration study team used ArcGIS, a cloud-based mapping and analysis tool, to help locate and measure timber harvest. ArcGIS was developed by Environmental Systems Research Institute (Esri).

Family Forest Ownership, Hispanic Population, Forest/Timberland
Map LINK

Data Included:

- **ACS Race and Hispanic Origin Variables** (feature layer from Esri)
  - B03002, 2019 ACS 5-Year Estimates

- **Forest and Timber Land Area** (feature layer by USFS_NRS_FIA)
  - County-level Estimates of 2012 and 2016, Volume, Growth, Removals, Mortality, Biomass, and Carbon derived from EVALIDator for the Forest Inventory and Analysis Program
    - **2012 Data**: excludes West Coast and some counties in middle
    - **2016 Data**: excludes Mississippi, Texas, Tennessee, Kentucky, Florida, some counites in middle and North-West
- **Forest Ownership (2014)** (tile layer by usf alvarez)
  - Three types of public ownership:
    - Federal
    - State
    - Local
  - Three types of private ownership:
    - Family (includes individuals and families)
    - Corporate
    - Other private (includes conservation and natural resource organizations, unincorporated partnerships and associations, and Native American tribal lands)

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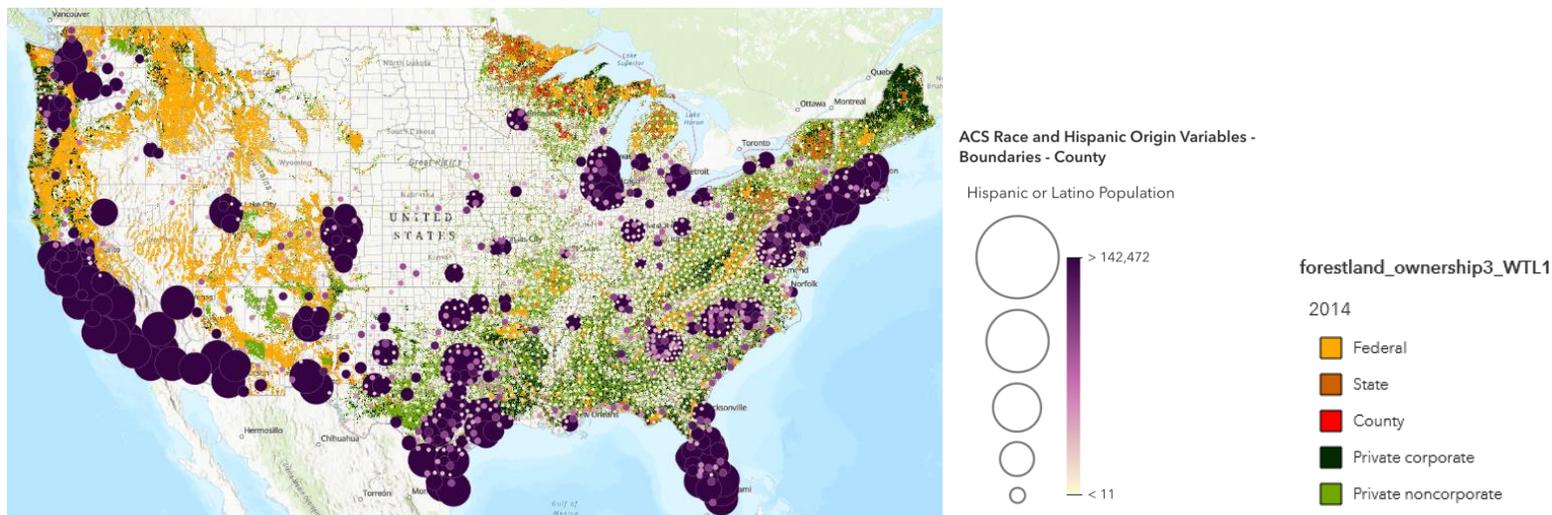
Figure 42: Forestland Ownership and Hispanic/Latino Population
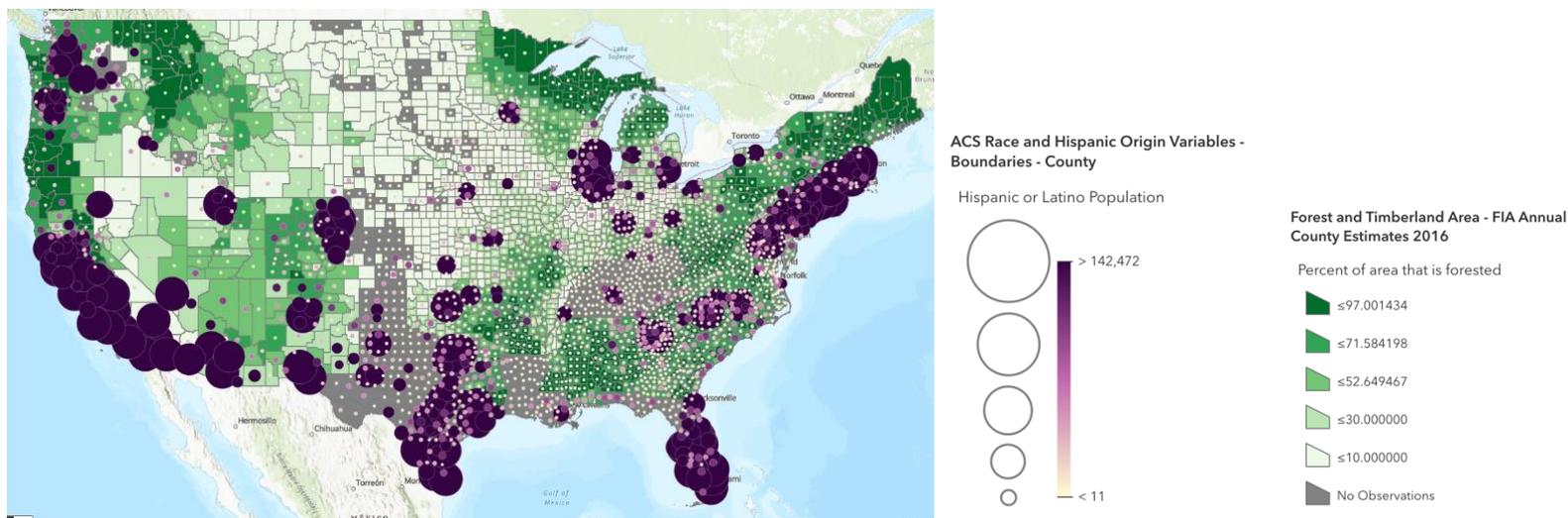
Figure 43: Percent of Area That Is Forested and Hispanic/Latino Population

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PRIMARY DATA ANALYSIS

Introduction

Whenever possible and when secondary data was not readily available, mano-Y-ola's team utilized qualitative research methods and conducted phone interviews with key informants or experts, minority landowners, and agency experts. Information collected relevant to Hispanic Forest Landowners' attitudes and behaviors that may help identify similarities and differences between regions across the country was recorded, transcribed, and added to the study findings. Initially, the enumeration estimates of Hispanic Forest Landowners focused on the Southern Region (13 states and Puerto Rico) and then extended the research to include the rest of the 50 states.

Interview questions and themes that led our key informant interviews included the following:

1. Please provide some historical perspective about the Sustainable Forestry and African American Land Retention Network (SFLR).
2. What are the key experts, researchers, and agencies (nonprofit, government, university) that can help provide information relevant to our study?
3. What are the Key NRCS programs and services that support forest landowners in your state and/or region? Can you share names of contacts? SPECIFICALLY, ANY DATA SOURCES AND PEOPLE.
4. What are the main challenges that Forest landowners have and that the agency is trying to address? What are some of the forest-related outreach efforts sponsored by you or your agency?

1. What are some of the distinctions between private forest use on the U.S. mainland and in Puerto Rico (PR)?
2. What are the key forest assistance programs available in PR? Differences within the island (regions, mapping representation)?
3. Main challenges that family forest landowners in PR are experiencing?
4. How can we leverage the Hispanic leadership in NRCS or USDA to collect data and enumerate the Hispanic Forest Landowners?

The mano-Y-ola Team used primary data gathering techniques to gain deeper insight into the realms of available secondary data and the experiences of similar minority landowner outreach programs. We uncovered complex layers of issues that plague landowners, along with confirmation that the attempts to gather data on minority forest landowners are few and unsuccessful. Existing data on minority family forest landowners is insufficient.

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Similar Efforts

The primary team began its data gathering by examining the literature that was shared by the endowment.

- ***Perceptions of Stakeholder Groups about the Participation of African American Family Forest Landowners in Federal Landowner Assistance Programs*** by Puneet Dwivedi, Arundhati Jagadish, and John Schelhas
- ***Strategies for Successful Engagement of African American Landowners in Forestry*** by John Schelhas, Sarah Hitchner, and Puneet Dwivedi
- ***Do Ownership Structures Affect Forest Management? An Analysis of African American Family Forest Landowners*** by Noah Goyke, Puneet Dwivedi, Marc Thomas
- ***Gatekeepers, Shareholders, and Evangelists: Expanding Communication Networks of African American Forest Landowners in North Carolina*** by Sarah Hitchner, Puneet Dwivedi, John Schelhas & Arundhati Jagadish
- ***Evaluation of the Sustainable Forestry and African American Land Retention Program*** by Jared Hardner, Hardner & Gullison Associates, LLC (2018)

Most of those publications were centered around or mentioned the Sustainable Forest Land Retention Network (SFLR). The SFLR was a U.S. Endowment (Endowment) and U.S. Forest Service (USFS) initiative to work with Black families who are forest landowners in the Southeastern United States. The SFLR program targeted Black families who are forest landowners to help them turn lands that had been financial liabilities into assets to keep them in these families' possession and create value. In addition, the program corrected institutional failures that made multigenerational issues with land titles and mistrust that had rendered these lands at-risk and useless. The primary team looked at the relevant aspects of the enumeration study that we were conducting, specifically, "How did the SFLR identify these Black families who are forest landowners?"

The study team interviewed:

- Sam Cook- SFLR Outreach Specialist- Executive Director of Forest Assets at NC State College of Natural Resources
- Alan McGregor- Involved in design of the SFLR Program
- Leonard Jordan- Former Chief of NRCS, support and liaison to the SFLR

The study team wanted to understand how SFLR staff identified Black Families who are forest landowners to see if there were any techniques, we could apply to the enumeration of Hispanic Forest Landowners. We also wanted to understand more about how they conducted outreach and the challenges they encountered to begin gathering ideas on modeling a Phase II outreach follow-up program.

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Identification

The SFLR program began with pilot studies into areas where the staff already knew Black family forest. From interviews with NRCS and Forest Service and Endowment staff, we learned what techniques were used to identify clusters of Black FLOs. They used connections through established community organizations and tax data to locate landowners with heirs who had property issues. After speaking with Leonard Jordan, Ron Harris, and Alan McGregor, they led the mano-Y-ola team to two hands-on people in the program design phase, Cassandra Johnson, and Sam Cook.

Dr. Johnson specializes in research related to heirs' property issues for the USFS; since the titling issues with Black FLOs were well known, she was perfect for the project. She helped conduct *"pilot studies in three states; in clusters within those states are selected counties within those states."* When asked how these clusters were identified, *"they [the identified clusters] were based mainly on these community-based organizations."* This was echoed by Sam Cook, the head of outreach for the SFLR program. *"That was the beauty of it. The Center [for Heirs Property and Preservation] was already working in those counties. But the need in South Carolina is every county, every county."* The Center already had 10 years working in these counties with many heirs' property issues and had established trusted connections with Black community organizations. Other community organizations like the Roanoke Cooperative and landowner associations helped SFLR identify where to conduct pilot studies.

Besides using community-based organizations to identify target areas, Dr. Johnson mentioned using tax data to locate clusters of Black family forest landowners. *"It was really helpful for me to allow me to get access to the FIA parcel data that has these heirs' property indicators, which has been like a watershed for the work that I do."* She went on to explain it in more detail: *"They've [third part aggregators done a lot of that footwork for you by going to the very local level – to the county level – and essentially aggregating the tax parcel records, and they can then be purchased from organizations by companies like digital maps products."* Using Geographic Informational Systems (GIS) and county tax data, she was able to effectively identify Black FLOs based on "heirs property indicators." Using what we learned from these SFLR interviews, mano-Y-ola's team searched for community-based organizations that may already be working with Latino FLOs and tried to see if there could be a strong connection between heirs' property and Latino landowners.

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Heirs' Property Issues and Latino Landowners

The SFLR successfully identified underserved minority landowners by focusing on a common issue shared among them: heirs' property. We learned that heirs' property was so prolific and problematic for Black landowners in the south that it became a clear data point to identify Black landowners and a common issue that groups could organize around; but would the same be true for Hispanic/Latino landowners? Dr. Johnson talked about her experience working on Heirs' Property among Whites living in poverty in the Appalachia region. She stated that "*heirs' property is thought to be pretty prevalent in Appalachia; guess what, it's an area of persistent poverty, not unlike the black belt, South, the rural areas in the black belt*."

> *Heirs' Property Defined*: Heirs' property is land that is jointly owned by descendants of a deceased person whose estate was never handled in probate court and is passed down from generation to generation.
> *Source: [North Carolina State Cooperative Extension](#)*

According to Dr. Johnson, "the Latinx ownership out here in the southeast will be very different from what you might see in Texas or California." The Hispanic Community is nonhomogeneous, and the experiences of someone of Cuban descent in Florida will be very different from a Mexican American in New Mexico. While heirs' property issues may persist among some Hispanics, this does not mean it is valid for all. To learn more, mano-Y-ola spoke with a lawyer in Texas, Heather Way, and a Lawyer in Puerto Rico, Jose Sanchez. Both specialize in resolving land titling issues in predominantly Latino communities.

Jose Sanchez is the co-founder of Victus Puerto Rico, which addresses farmers' legal, business, and conservation needs on the island's south side. "*Yes, we do find a lot of problems with heirs' properties issues." Sanchez* explained that many of the heirs' property issues that he deals with are related to a land redistribution project called *fincas familiars, or* family farms. "*We know that historically, in Puerto Rico, many farmers have obtained their titles, their lands, or their farms from the government, because it was public land. They established a program in the 50s or 60s, called fincas familiars.*" As a result of this program, rural poor folks were given lands without instruction on preparing wills and transferring land titles, resulting in pervasive heirs' property issues on the island. Much of what we know from needs assessments done for the SFLR program is true in the case of Puerto Rico. These lands with unclear titles wind up being becoming liabilities and abandoned. When getting a loan, they cannot use it as collateral without becoming ineligible for government programs and cannot sell either. Many of the reasons these farmers left their titles clouded mirror the findings of the SFLR program.

The top reasons for not clearing titles were mistrust, lack of institutional knowledge, and socioeconomic status. In the case of Puerto Rico, there was a clear correlation between the SFLR network in America's black belt when it came to heirs' property. In both cases, there was some form of land redistribution, in the Black Belt Reparations, and in PR's Fincas Familiares. These redistributions of land took place more than 50 years ago. These were lands redistributed to populations that had suffered and continued to suffer from institutional neglect, resulting in unclear land titles.

The mano-Y-ola research team reached out to Heather Way, who worked with Dr. Johnson on publications on the prevalence of heirs' property in the [Colonias of South Texas](#). *"I'd say wherever you have multiple generations of families living, if the community's lower-income socioeconomically, you're going to see heirs' property that you have in Texas."*

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But when it came to Latino heirs' property issues, Ms. Way stated *"we did a door-to-door survey of about 1,200 homeowners in South Texas who were 99 percent Latino, but the ownership is more recent. People acquired the properties in the 80s and 90s; you're not going to see much in the way of heirs' property because you still have a lot of original occupants who were the original buyers."* Heather Way works and lives in Eastern Texas, where the population is historically Black and White, though she says that there has been a lot of Latino migration to the area in recent decades. *"I think you will also see heirs' property issues in New Mexico,"* she added.

Her analysis was that heirs' property is a generational and socioeconomic issue, and that is consistent with what we know about race and socioeconomic status being inseparable. When it comes to time, she believes that it takes about "50 years" for heirs' property issues to become a salient issue for a family. Meaning that states that have been home to Mexican Americans for generations like New Mexico, Arizona, Colorado, and California could have higher rates of heirs' property. Still, in areas with less of a historical presence and longer-term Hispanic populations, this may not be the case. She concluded the interview by saying: *"You're not going to see Heirs' Property issues because of the newer migration (in Eastern Texas). But it will occur at some point. And given that you have such low rate of succession planning among Latino families, it's important to be proactive in terms of preserving people's property ownership to recognize that and to enact programs that address it."*

The conclusion for heirs' property in Latino Communities is that while there may be some overlap depending on the state and generational inhabitants, heirs' property cannot be relied upon as a way of identifying Latino FLOs like it was in the SFLR program. However, from speaking with the experts, it is a likely issue we will encounter going forward and one that any outreach to these communities could help to prevent before it happens.

Data Insights

Unlike the SFLR forest owner identification approach, our team began to seek out other data sources we could use to enumerate Latino Family Forest Landowners nationwide.

We interviewed other national and state key informants and experts:

- Ron Harris - NRCS Branch Chief of the NRCS Outreach and Advocacy Division
- Luis Cruz Arroyo - Conservationist for the Island of Puerto Rico
- Dr. John Schelhas - Research Scientist with the USFS
- Dr. Brett Butler - Research Forester with USFS Forest Inventory & Analysis
- Justin Holgerson - Forester and Research with USFS Northern Research Station
- Dennis Ware - NRCS District Conservationist in Welch Oklahoma

The task of the primary team became how to find data that indicated demographics of Hispanic Forest Landowners (**HFLOs**). Since there was no established relationship between heirs' property indicators and HFLOs, as in the SFLR program, the study needed to rely on either direct confirmation or indirect confirmation of HFLOs. Therefore, the study focused on data that directly enumerated Hispanics or registries from secondary sources or an indirect proof (proxy) such as tax records or program applications.

Cassandra Johnson mentioned using FIA parcel data to identify Black landowners based on indicators. We were optimistic about the parcel data's ability to identify forest landowners. According to Dr. Johnson, *"They've done a lot of that footwork for you by going to the very local level, to the county level, and essentially aggregating the tax parcel records, and they can then be purchased from organizations by companies like digital maps products."* Unfortunately, these county-level records did not have race or ethnicity information, and using Spanish surname was not a statistical alternative our team accepted.

Our team also sought an interview with Dr. Brett Butler, the National Woodland Owners Survey (NWOS) director, to learn how to use United States Forest Service data. Dr. Butler confirmed a noticeable gap in the response rate of mail-in survey results for minority landowners and White landowners. He mentioned that the FIA might be helpful and suggested contacting Zillow, the real-estate company, to see what they could offer us. He expressed hesitation about the capacity of new users, unfamiliar with FIA, using FIA's DATIM effectively just with a tutorial.

Our team encountered a great deal of trouble finding a datapoint that indicated the race/ ethnicity of forestland owners. We spoke with a USFS economist, Jose Sanchez, who recommended Census data, *"The data you're already using, the census data; I think that's the best data out there that has what what's needed to find the Latino population."* We finally found a valuable lead speaking with Leonard Jordan about effective programs. He mentioned, *"EQIP… Oh, that's, that is the program that was the meat and potatoes program,"* meaning that forestland owners were most apt to take advantage of it. It led the primary team to try and find a way to access anonymized Natural Resource Conservation Service Data.

In search of indirect data, the team reached out to Dennis Ware, District Conservationist in Oklahoma. Before assuming his post in Oklahoma, he was in the heavily timbered area of Southeastern Louisiana, giving him unique insight into how forest landowners interact with various agencies that may have indirect data. For example, our team asked about using tax records to identify Latino landowners; he responded, *"The assessor is probably going to view that as agricultural land or commercial land."* However, Ware did

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confirm that on NRCS applications, they do record demographic information with regard to whether they belong to a socially disadvantaged group or not.

Following up with other NRCS contacts, the team spoke with Luis Cruz, Conservationist for the island of Puerto Rico. Cruz recommended that we first contact the National Organization of Professional Hispanic Natural Resources Conservation Service Employees (NOPHNRCSE). Second, he suggested contacting someone in the Farm Services Agency (FSA). "*In our program, FSA would be responsible for marking them as far as race and ethnicity in the system.*" Finally, we contacted the NOPHNRCSE's President, Victor Hernandez, who is also the NRCS Outreach Coordinator for the State of California. Hernandez requested anonymized NRCS contracts for Latino landowners/operators from the states we targeted (TX, CO, NM, OK, FL, CA, WA, OR). It provided the study county-level data of Latino landowners with NRCS contracts; the report included the conservation practices used by owners and operators. We then isolated practices related to forestry and agroforestry, and we had our data point.

In summary, there is little publicly available forest ownership data or demographic data that could be useful in the enumeration of minorities in this realm. The mano-Y-ola team learned that the FIA third-party data used to identify clusters for the SFLR program would not be applicable because we were unsure of the relationship between heirs' property and Latino FLOs. The National Woodland Owners Survey is the only USFS product identified that accounted for landowner demographics. However, it had no data on HFLOs because of the NWOS sample size and survey methods. In terms of DATIM's ability to assist, there seems to be sparse data and few people with answers about what information it contains that was relevant to this study. Through contacts with the NRCS, our team could locate reliable data on Hispanic Forest Landowners that had conservation contracts.

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State Selection

When selecting areas with a high potential for HFLOs, we gathered insight from experts from the key areas of interest. Many of their observations were confirmed by the secondary data. For example, José Sánchez, economist with the USFS, recommended California, Texas, and New Mexico "*just based on history."* Speaking with Ron Alvarado, Oregon State Conservationist, they know there are a lot of Latinos in the timber industry, and they expect to see an increase in Latino FLOs.

In other interviews, these sentiments were echoed when talking about rural population shifts from White to Latino in many different areas. For example, Dr. Cassandra Johnson said, *"We're getting a lot of Hispanic people coming in and buying land [in rural Alabama]."* Heather Way had a similar observation. "*There are these demographic shifts we're seeing in Texas, especially in small towns where you have White families leaving and the Hispanic population is booming*."

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Developing a Predictable Model of Hispanic Forest Landowners
Jupyter
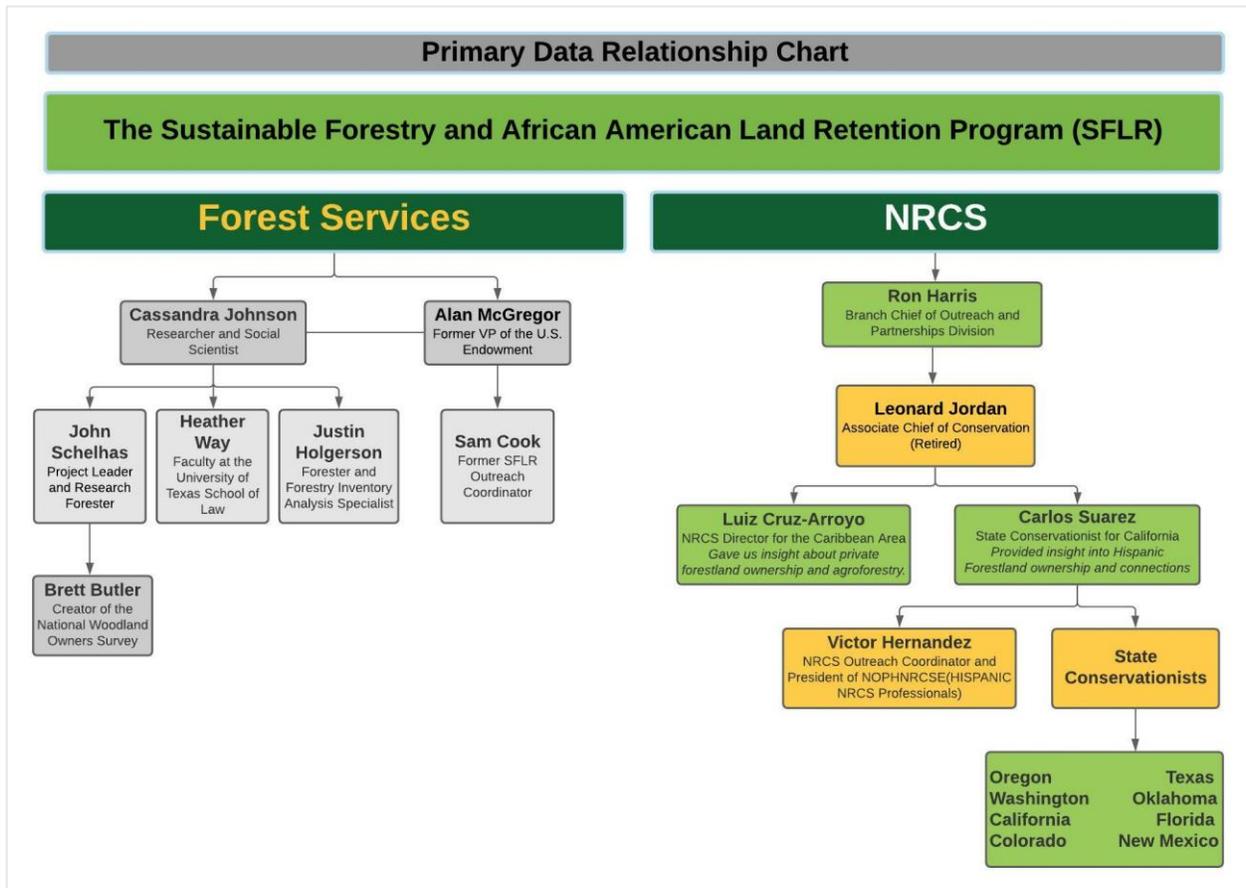
DEVELOPING A PREDICTABLE MODEL OF HISPANIC FOREST LANDOWNERS

Jupyter

The number of private Hispanic Forest Landowners across the United States is unknown. As presented earlier, among other indicators collected, this study relies on data from the NRCS Protracts database on Hispanic Forest Landowners who received programs and services from eight states, representing 30 counties. Taking Protracts data and measuring the relationship with other indicators like woodland acres, Hispanic population percentages, and labor statistics helped the study predict the potential number of Hispanic Forest landowners in all U.S. counties. Although the prediction is not entirely precise, it will help lead the outreach strategy into areas with a high likelihood of Hispanic Forest Landownership. Outreach efforts will help verify and validate the predictions and reinforce the chances of improving the model.

The predictive model is a mathematical process that seeks to predict future events or outcomes by analyzing patterns that are likely to forecast future results. The team designed a predictable model in Jupyter Notebooks and applied it to the secondary data to obtain an enumeration result. Using Jupyter's workspace, the team built and trained a predictive model to generate an enumeration of Hispanic Forest Landowner potential.

ProTracts records of Hispanic Landowners/Operators from eight states (CA, OR, WA, NM, TX, OK, FL, CO) and includes contract counts for 514 counties. The study isolated data on specific practices used in forestry and agroforestry (Forest Management Plan, Forest Stand Improvement, Non-Industrial Private Forest Land Payment). After separating forest-related contracts, the data included Hispanic Landowner/Operator contract counts for 142 counties.

Example of How the Predictable Model Works.

The objective is to predict how high an American Chestnut Tree would grow in all 50 states, using the only known data: the average height for three states (VA, TN, NC). However, the rest of the indicators for all 50 states are also known: Soil Type, Average Temperature, and Rainfall. So the goal is to build a model that predicts the height of chestnuts in the other 47 states.

The relationship between what **is known (soil type, average temperature, rainfall)** and is to be predicted (**predictable height**) is identified with a predictive model. Next, the model determines a pattern between the values **that are known,** including the **height**. In essence**, the model is "trained"** on how indicators relate to height.

State	Soil Type	Avg Temp	Rainfall	Height
VA	Loam	70	300	20'
TN	Peat	65	700	23'
NC	Loam	80	500	18'

In the next step**, known data** (**soil type**, **average temp**, **rainfall**) from the other 47 states is used, applying the patterns learned in the first step to enable the model to generate a **predictable (estimated) height**.

States	Soil Type	Avg Temp	Rainfall	Height
LA	Peat	75	600	(estimated)
GA	Loam	71	550	(estimated)
MS	Loam	65	400	(estimated)
AK	Peat	66	300	(estimated)
…	Loam	72	600	(estimated)

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Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Developing a Predictable Model of Hispanic Forest Landowners
Jupyter

In the case of the Hispanic Forest Landowner Predictive Model, it was built to predict NRCS' ProTracts Registered HFLOs or Operators in 3,143 counties across the U.S.

The known data was the Forest-Related ProTracts data from 142 counties in eight states.

County	Percent of Latino Population	Percent of Land Forested	Operations	Prediction of Hispanic Forest Landowners (HFLOs)
Cook	57	21	70	30
Jones	73	92	200	88
Walker	15	34	19	3

Following the steps explained in the *American Chestnut Tree* example above, as the **Baseline data** the Forestry Indicators (**Forest Management Plan, Forest Stand Improvement, Non-Industrial Private Forest Land Payment)** for 142 Counties was used, along with relevant secondary data collected for those 142 counties. Next, the model determined a pattern between the known values, including the known ProTracts numbers. The trained model **predicts** ProTracts Numbers.

This data is fed into the model and establishes patterns between combinations of the baseline data and how it estimates unknown Hispanic Forest Owners ProTracts.

In the prediction phase, the trained model then takes **Baseline Data** for all the counties with **Hispanic Protracts Unknown** and makes a prediction based on the relationship established in the training phase.

Predictable Model Phases

Baseline input → Training Phase (with **Hispanic ProTracts Known**) → Prediction Phase (on All Counties) →

Output: **Estimated Hispanic Forest Landowners**

Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Developing a Predictable Model of Hispanic Forest Landowners
Analysis/Summary

Analysis/Summary

The ProTracts Data has its weaknesses:

(1) Sample Size

It is challenging to predict if the sample size used is statistically significant. Other minority forest ownership studies acknowledge that the Hispanic Forest ownership size is unknown; therefore, the 1,857 forest-related Hispanic contracts for 142 counties may or may not be significant.

(2) Six-Year Time Span

The contracts studied represent six years, from 2015 to 2021. Most of these contracts are limited to one per year. There could be up to six (overcount) contracts belonging to a single Hispanic Forest Landowner. It was necessary to include a possible overcount to have a significant sample size.

(3) Context Dependence

Participation of historically underserved communities in government programs is dependent on high-quality outreach, as we learned from the Sustainable Forestry and African American Land Retention Network (SFLR). Therefore, the density of contracts in a county is a factor of the Hispanic Forest Landowner presence and quality outreach.

While the model has notable weaknesses, this study did a thorough job assessing data sources available relating to Hispanic Forest Landownership and found that Protracts was the only indicator that directly confirmed Hispanic Forest Landowner presence in a county.

A final note about the data used in the model and what would be missing is the time factor. The model incorporates data related to land type (forest or not), industry (forestry-related or not), and population (Hispanic or not), but one key element that determines land ownership is the time that a population has spent in an area. Unfortunately, the team could not find a consistent indicator of the presence of population change across states and counties. As a result, the study needed to lean on primary data that gave us insight into the historical presence of the Latino population in forested areas. For example, forested counties in Georgia that have seen substantial growth in the Latino population are predicted to have the same level of contracts in New Mexico counties.

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Developing a Predictable Model of Hispanic Forest Landowners
State Estimates

State Estimates

The table below represent the state totals of Hispanic Forest Landowners (HFLOs) that the predictive model generated.   Those highlighted yellow are the states of interest to the study. Though some states in the Northeast, Midwest, and Southeast region show higher counts, this results from the limitation of the model to incorporate multigenerational Hispanic presence into the prediction. While a state can be heavily forested and have a large Latino population, the study team believes the chance of forestland ownership will be lower if that population is relatively new to the area. The state totals left unhighlighted can instead be seen as fertile ground for future HFLO's as a new generation of Hispanics become established.

State	Prediction of Hispanic Forest Landowners (HFLOs)
Alabama	409
Arizona	122
Arkansas	349
California	351
Colorado	289
Connecticut	69
Delaware	23
Florida	462
Georgia	925
Idaho	158
Illinois	1,066
Indiana	410
Iowa	317
Kansas	280
Kentucky	557
Louisiana	326
Maine	165
Maryland	154
Massachusetts	134
Michigan	645
Minnesota	322
Mississippi	490
Missouri	429
Montana	221
Nebraska	247

State	Prediction of Hispanic Forest Landowners (HFLOs)
Nevada	40
New Hampshire	94
New jersey	140
New Mexico	301
New York	513
North Carolina	557
North Dakota	142
Ohio	525
Oklahoma	244
Oregon	269
Pennsylvania	611
Rhode Island	25
South Carolina	320
South Dakota	184
Tennessee	436
Texas	2,007
Utah	117
Vermont	127
Virginia	546
Washington	286
West Virginia	301
Wisconsin	449
Wyoming	57

Table 12: State Prediction of HFLOs

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Developing a Predictable Model of Hispanic Forest Landowners
Maps

Maps

Based on the prediction, Oregon state counties with a significant "high" likelihood of HFLOs are Lane, Grant, Clackamas, and Washington Counties. Developing a strategic regional outreach focus and partnership with foresters, NRCS, and Extension staff, mano-Y-ola bilingual specialists could reach over 70 HFLOs in six to seven Oregon Counties.

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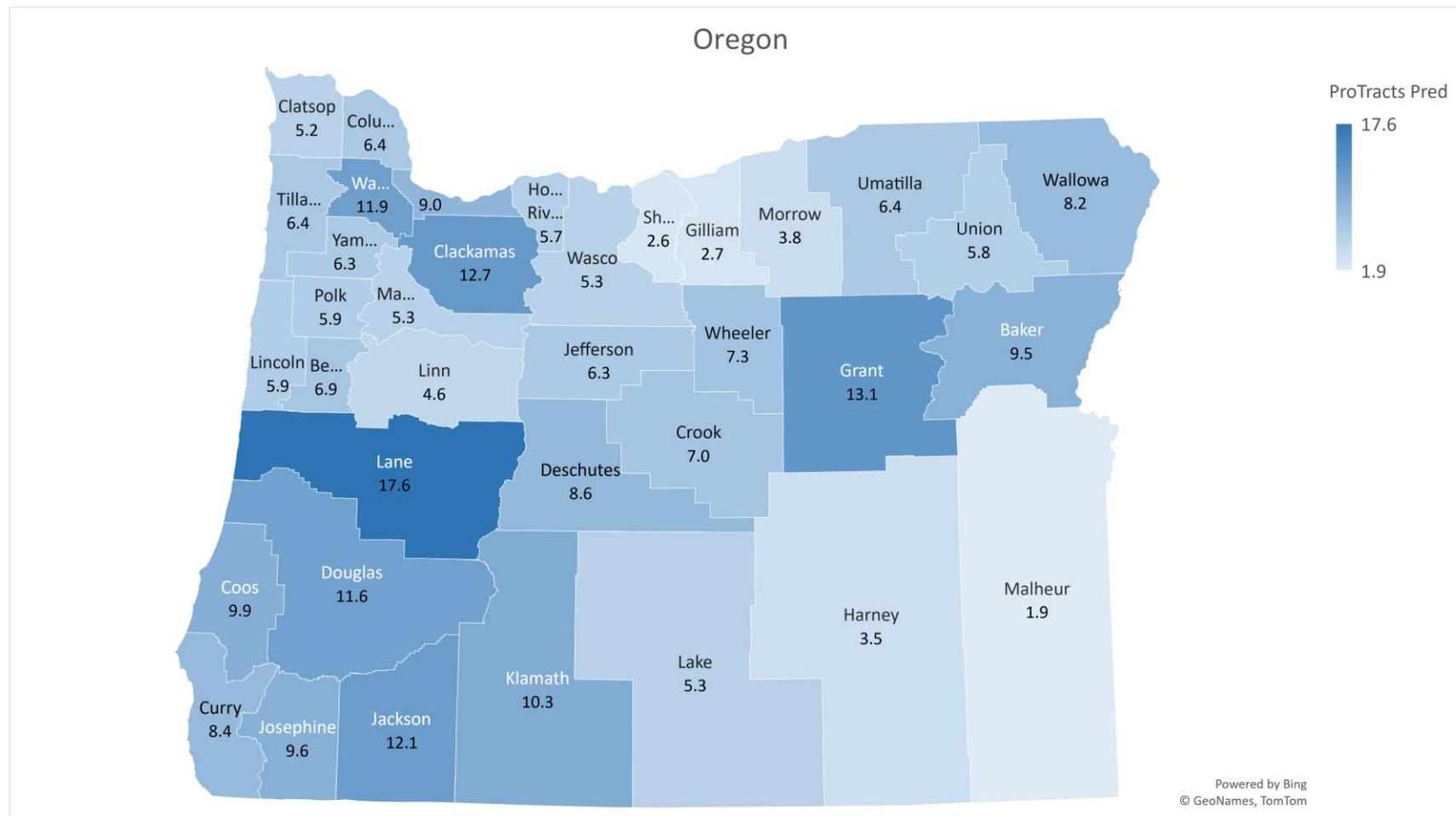
Enumerations Study of Hispanic Forest Landowners (HFLO) in the United States
Developing a Predictable Model of Hispanic Forest Landowners
Maps

Based on the Predictable Model results, New Mexico is one of the ideal states to verify the presence of HFLOs. It is a perfect location to design and administer a landowner needs assessment survey with a large sample size. Assessment results and findings will help develop the appropriate outreach plan to support forest health and invigorate forest-rich communities among Hispanic Forest Landowners everywhere in the U.S. Rio Arriba County is "ground zero," or a starting point for assessment and outreach activities associated with HFLOs development and growth.
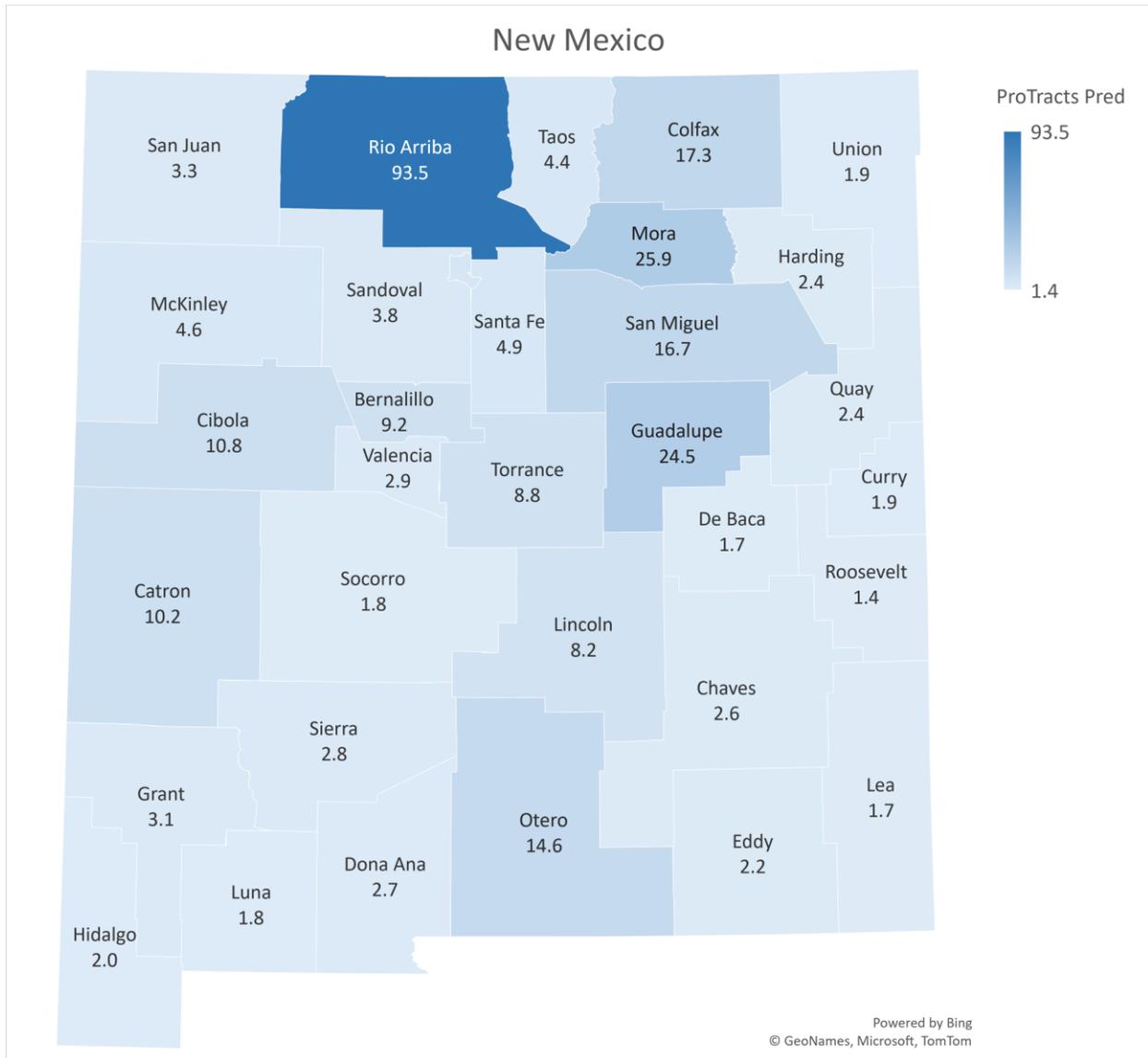
STUDY CONCLUSIONS AND RECOMMENDATIONS

U.S. Hispanics account for 62 million individuals—nearly 20 percent of the U.S. population. In the 2020 U.S. Census, Hispanics accounted for over 50 percent of the country's growth. This population growth trend is expected to continue in traditionally Hispanic/Latino states (California, Texas, New Mexico, Florida, New York) and emerging Southeastern States (North Carolina, Virginia, Tennessee, Georgia). In addition, homeownership studies forecast that Hispanic homebuyers will make up 70 percent of homeownership growth from 2020 to 2040.

The states identified in the Hispanic Forest Landowners (HFLO) enumeration study with the best opportunity to build leadership, wealth, and sustainable management practices are Texas, California, New Mexico, Florida, Colorado, Washington, Oklahoma, and Oregon. The study's HFLO predictable model combines the most critical data sources relevant to identifying counties across the nation with the highest number of forest landowners. New Mexico, the state with the highest percentage of the Hispanic population, is one of the ideal states to establish and test a culturally appropriate outreach and comprehensive assessment of HFLO in the state's northern region. The enumeration study estimates of HFLO become the most critical first step to implementing strategies and activities to define Hispanic Forest Landowners characteristics, needs, and land use objectives across the U.S.

As in the U.S. agricultural industry, the economic future depends on a labor force overrepresented by the Hispanic population in forestry. The Hispanic population growth is also key to the future development of private forest landownership, private forest landowners' management decisions, and the overall economic functioning of forest-related industries. Therefore, it is a timely investment to focus on culturally appropriate outreach and HFLO capacity-building activities. The information gathered for this study from HFLOs that participated in government cost-share or match programs is the most direct link to Hispanic Forest landowners' location, behavior, and land usage. A planned outreach strategy and specific benchmarks can also reduce potential barriers that lessen the ability of many HFLOs to take advantage of government assistance and financial incentive programs.

The outreach activities to complete upon predicting the locations with the highest HFLO population should include:

1. Survey HFLO awareness of government forestry programs
2. Assess HFLO participation in government cost-share incentive activities
3. Identify the number of HFLOs seeking professional assistance
4. Report on the current characteristics of HFLO management plans
5. Measure the knowledge of HFLO forestry conservation and management

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APPENDICES

Appendix A: USDA Data Reviewed

Appendix B: Agencies and Resources

Appendix C: Agroforestry

Appendix A: USDA Data Reviewed

USDA RCA Reports

The Soil and Water Resources Conservation Act (RCA) provides broad natural resource strategic assessment and planning authority for the U.S. Department of Agriculture (USDA). The purpose of the RCA is to ensure that USDA programs for the conservation of soil, water, and related resources are responsive to the long-term needs of the Nation.

https://www.nrcs.usda.gov/wps/portal/nrcs/rca/national/technical/nra/rca/ida/

USDA NRCS EQIP MAPS

The Environmental Quality Incentives Program (EQIP) is a voluntary program that provides financial and technical assistance to agricultural producers through contracts up to a maximum term of 10 years in length. These contracts provide assistance to help plan and implement conservation practices that address natural resource concerns to improve and conserve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. EQIP also helps producers meet Federal, State, Tribal and local environmental regulations.

https://www.nrcs.usda.gov/Internet/NRCS_RCA/maps/cp_eqip_maps.html

EQIP Raw Data Download:
https://www.dropbox.com/s/jjkkrlxkm6usbvh/EQIP%20Raw%20Data%20Download%20-%203.14.21.xlsx?dl=0

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USDA REGStats

The USDA Race, Ethnicity, and Gender Program Statistics query tool, known as REGStats, is the official tool of the United States Department of Agriculture (USDA) for making program application and participation rate data available to the public on the Internet. The REGStats website provides summary information about the number of individuals and entities that apply for, and receive, federal assistance from four USDA agencies or mission areas – the Farm Service Agency (FSA), the Natural Resources Conservation Service (NRCS), Rural Development (RD), and the Risk Management Agency (RMA). Read this User's Guide before accessing REGStats to gain a better understanding of the search criteria and reports.

The information available in REGStats includes the number of applicants and recipients, by fiscal year, for USDA programs available to agricultural producers and landowners, categorized by race, ethnicity, and gender. Summary totals may be obtained nationally, or by state and county for the 50 states, as well as the U.S. territories.

REGStats allows you to filter data using one or more selection boxes. The selection boxes in REGStats limit the data you retrieve based on the simple filtering rules of What, Where, and When.

- *What refers to the ability to filter data based on a specific race, ethnicity, gender, agency, and program.*
- *Where refers to the ability to filter data based on location; a geographic level such as the entire United States, one or more specific states, and one or more counties.*
- *When refers to the ability to filter data based on time; a specific fiscal year.*

https://www.regstats.usda.gov/

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Natural Resource Conservation Data (NRCS) (2012)

In 2012 (most recent data available at the time of this study), there were 59,767 individuals in the United States that participated in NRCS programs, of which only 1,337 were Hispanic. LINK TO TWBX FILE

State: All, Program: All
NRCS Data Range: 2012
Source: regstats.udsa.gov

Participation: PARTICIPANT / Ethnicity: HISPANIC

State	AGRICULTURAL MANAGEMENT ASSISTANCE PROGRAM	AGRICULTURE WATER ENHANCEMENT PROGRAM	CONSERVATION STEWARDSHIP PROGRAM	ENVIRONMENTAL QUALITY INCENTIVES PROGRAM	FARM AND RANCH LANDS PROTECTION PROGRAM	GRASSLAND RESERVE PROGRAM	WETLANDS RESERVE PROGRAM	WILDLIFE HABITAT INCENTIVE PROGRAM	Grand Total
ALABAMA			1	9					10
ALASKA				2					2
ARIZONA				12					12
ARKANSAS		1	4	16			1	1	23
CALIFORNIA		10	2	89	2				103
COLORADO		2	1	66	1			3	73
CONNECTICUT				3				1	4
FLORIDA			2	20	1				23
GEORGIA			1	15					16
HAWAII				8					8
IDAHO				4		1			5
ILLINOIS			1	1					2
INDIANA				4				2	6
IOWA			3	5					8
KANSAS			2	10					12
KENTUCKY				2					2
LOUISIANA				8					8
MAINE				6					6
MASSACHUSETTS				3					3
MICHIGAN				10					10
MINNESOTA				2					2
MISSISSIPPI			1	17				1	19
MISSOURI				5			2		7
MONTANA				3					3
NEBRASKA		5		3					8
NEVADA				3					3
NEW HAMPSHIRE				4					4
NEW JERSEY				1					1
NEW MEXICO		30		181			2	1	214
NEW YORK				7					7
NORTH CAROLINA			1	7					8
NORTH DAKOTA				3					3
OHIO				6					6
OKLAHOMA			6	11					17
OREGON			3	6					9
PENNSYLVANIA				2					2
PUERTO RICO				306					306
SOUTH CAROLINA			1	5					6
SOUTH DAKOTA				1			1		2
TENNESSEE				7			1		8
TEXAS		6	18	315		1			340
UTAH				2					2
VERMONT				1					1
VIRGINIA			1						1
WASHINGTON			2	12					14
WEST VIRGINIA	1		1						2
WISCONSIN			1	4					5
WYOMING	1								1
Grand Total	2	19	87	1,207	4	2	7	9	1,337

State: All
NRCS Data Range: 2012
Source: regstats.udsa.gov

Participation: PARTICIPANT / Ethnicity: All / Gender: All

State	HISPANIC	NOT HISPANIC	UNKNOWN
PUERTO RICO	97.45%	0.64%	1.91%
NEW MEXICO	24.65%	64.06%	11.29%
ARIZONA	7.14%	62.50%	30.36%
TEXAS	6.98%	83.36%	9.65%
COLORADO	5.37%	80.29%	14.34%
HAWAII	4.73%	89.35%	5.92%
CALIFORNIA	4.42%	73.70%	21.88%
FLORIDA	3.10%	84.66%	12.25%
WASHINGTON	1.96%	80.22%	17.81%
CONNECTICUT	1.72%	90.13%	8.15%
NEVADA	1.43%	78.57%	20.00%
OREGON	1.35%	82.04%	16.62%
ALASKA	1.20%	95.81%	2.99%
NEW YORK	1.12%	87.04%	11.84%
MICHIGAN	1.01%	86.02%	12.97%
IDAHO	0.96%	86.73%	12.31%
MISSISSIPPI	0.94%	77.64%	21.43%
NEW HAMPSHIRE	0.89%	82.26%	16.85%
ARKANSAS	0.88%	79.57%	19.55%
OKLAHOMA	0.82%	88.52%	10.66%
SOUTH CAROLINA	0.82%	91.41%	7.78%
MAINE	0.78%	89.44%	9.78%
MASSACHUSETTS	0.76%	81.98%	17.26%
LOUISIANA	0.60%	90.53%	8.87%
GEORGIA	0.60%	86.47%	12.93%
ALABAMA	0.59%	86.93%	12.48%
NORTH CAROLINA	0.59%	89.59%	9.82%
INDIANA	0.59%	83.90%	15.51%
KANSAS	0.56%	86.78%	12.66%
TENNESSEE	0.54%	96.02%	3.44%
UTAH	0.49%	87.29%	12.22%
OHIO	0.49%	91.14%	8.37%
NEW JERSEY	0.39%	81.78%	17.83%
WEST VIRGINIA	0.35%	93.58%	6.08%
MONTANA	0.35%	80.21%	19.44%
NEBRASKA	0.34%	77.01%	22.65%
MISSOURI	0.33%	87.81%	11.86%
IOWA	0.31%	88.96%	10.73%
WYOMING	0.24%	82.68%	17.07%
PENNSYLVANIA	0.24%	89.24%	10.52%
WISCONSIN	0.24%	86.43%	13.33%
KENTUCKY	0.18%	86.23%	13.59%
ILLINOIS	0.18%	89.11%	10.72%
VIRGINIA	0.17%	88.42%	11.41%
VERMONT	0.16%	89.65%	10.19%
NORTH DAKOTA	0.15%	90.25%	9.60%
SOUTH DAKOTA	0.14%	81.84%	18.02%
MINNESOTA	0.08%	89.38%	10.54%
AMERICAN SAMOA		100.00%	
DELAWARE		90.08%	9.92%
DISTRICT OF COLUMBIA		100.00%	
GUAM		90.00%	10.00%
MARYLAND		79.24%	20.76%
NORTHERN MARIANA ISLANDS		100.00%	
RHODE ISLAND		72.32%	27.68%
VIRGIN ISLANDS OF THE U.S.		70.00%	30.00%

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Farm Service Agency (FSA) Data (2018)

During 2018 (most recent data available at the time of this study), there were more than 236,000 individuals in the United States that participated in FSA programs, of which only 862 were identified as Hispanic (6,012 participants were listed as having an "unknown" ethnicity). Hispanic participation was only documented for the Guaranteed Loan Program; per regstats.usda.gov data there were no Hispanic participants in the Direct Loan Program. With 666 participants, the top 10 states (California to Michigan) make up 77.3 of all Hispanic participants in the Guaranteed Loan Program in the United States.

Hispanic Participants in the Guaranteed Loan Program (2018)
Source: www.regstats.usda.org

	Number	Percent of Total
California	230	26.7%
Texas	90	10.4%
Florida	78	9.0%
New Mexico	74	8.6%
Washington	69	8.0%
Arkansas	34	3.9%
Colorado	32	3.7%
Arizona	23	2.7%
Idaho	20	2.3%
Michigan	16	1.9%
Oregon	14	1.6%
Kansas	14	1.6%
Ohio	12	1.4%
Kentucky	12	1.4%
North Carolina	10	1.2%
Nevada	10	1.2%
Missouri	10	1.2%
Louisiana	10	1.2%
Georgia	10	1.2%
Wisconsin	8	0.9%
Oklahoma	8	0.9%
Nebraska	8	0.9%
Maryland	8	0.9%
Hawaii	8	0.9%
Tennessee	6	0.7%
South Carolina	6	0.7%
Delaware	6	0.7%
North Dakota	4	0.5%
Montana	4	0.5%
Mississippi	4	0.5%
Minnesota	4	0.5%
Indiana	4	0.5%
Illinois	4	0.5%
Virginia	2	0.2%
Vermont	2	0.2%
South Dakota	2	0.2%
Pennsylvania	2	0.2%
New York	2	0.2%
New Jersey	2	0.2%
TOTAL	862	X

State: ARIZONA, ARKANSAS, CALIFORNIA and 37 more, Program: GUARANTEED LOAN PROGRAM
FSA Data (2018)
Source: regstats.udsa.gov

Participation: PARTICIPANT / Ethnicity: HISPANIC
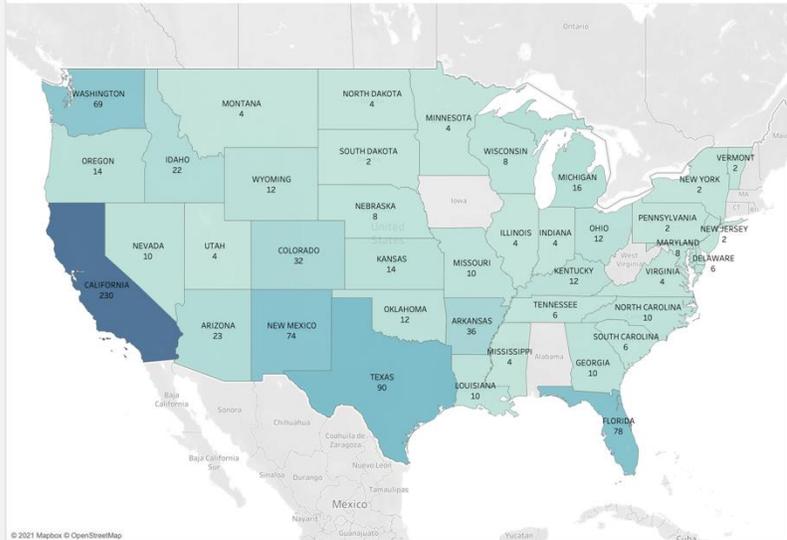
State: ARIZONA, ARKANSAS, CALIFORNIA and 37 more, Program: GUARANTEED LOAN PROGRAM
FSA Data (2018)
Source: regstats.udsa.gov

Participation: PARTICIPANT / Ethnicity: HISPANIC
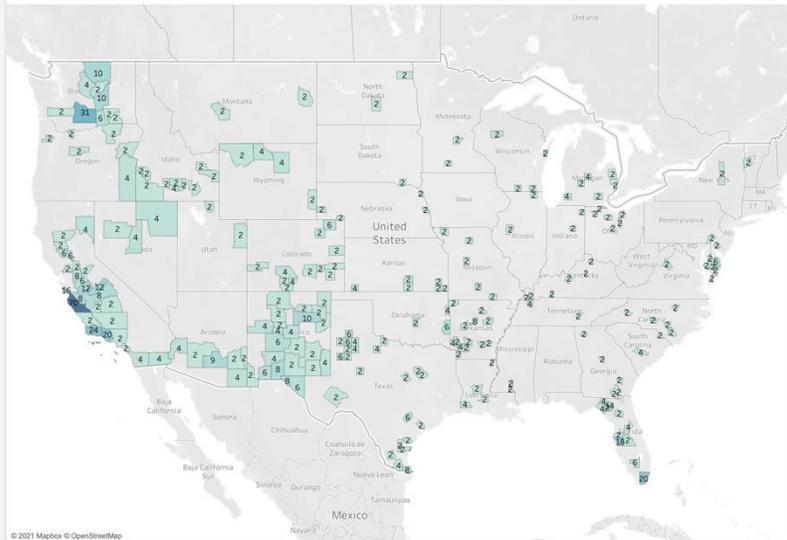
USDA CENSUS OF AGRICULTURE (2017)

Hispanic Producers and Operations (Chapter 2, Table 48)
Hispanic, Latino, or Spanish origin. *Producers of Hispanic, Latino, or Spanish origin are found in all of the racial groups listed in the census and were tabulated according to the race reported, as well as on tables pertaining only to this group.*

Woodland Acres and Operations (Chapter 2, Table 8)
Woodland pastured. *This category includes all woodland used for pasture or grazing during the census year. Woodland or forest land pastured under a per-head grazing permit was not counted as land in farms and, therefore, was not included in woodland pastured.*

Woodland, total. *This category includes natural or planted woodlots or timber tracts, cutover and deforested land with young growth which has or will have value for wood products, and woodland pastured land. Land covered by sagebrush or mesquite was reported as Permanent pasture and rangeland or other land. Land planted for Christmas tree production and short rotation woody crops was reported in Cropland harvested, and land in tapped maple trees was reported as Woodland not pastured.*

Potential data to include in the future

Income From Farm-Related Sources (Chapter 2, Table 6)
Sales of forest products, excluding Christmas trees, short rotation woody crops, and maple products.

Selected Practices (Chapter 2, Table 43)
Practiced Alley Cropping, silvopasture, forest farming, or had riparian forest buffers or windbreaks.

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USDA ProTracts Data (FY2021, Quarter 2)

Practices worksheet displays a list of practices in eight states (CA, CO, FL, NM, OK, OR, TX, and WA) from Hispanic or Latino producers, with an active or completed contract status and any contract item status other than deleted.

Beginning in FY2020, initiative and subaccount were recorded at the contract item (practice) level. There are 37 duplicate contract item I.D.s (practices) from FY20 in the practice table due to modifications made to these practices that created an additional entry in ProTracts. Contract item data will be duplicated for these practices.

Extent performed shows the amount of practice that was certified.

Not all practice units are in acres.

Land use name column identifies practices that are identified as Non-Industrial Private Forestland. The land use data element is only applicable to CSP practices. ProTracts data doesn't specifically identify forest land producers for programs other than CSP. Additional data related to trees is contained in the crop field.

NAQI (National Air Quality Initiative) is an initiative that supports targeted air quality work in selected states. Initiative data is in column F. There are several entries in the initiative column that contain the words air quality: air quality national, air quality priority, and air quality state.

Data Source: ProTracts FY21QTR2

Program Included:

ACEP: Agricultural Conservation Easement Program
- https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/

CSP_GCI: Conservation Stewardship Program, Grassland Conservation Initiative
- https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/csp/
- https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=43711

CStP: Conservation Stewardship Program (??)
- https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/eqip/?cid=nrcs144p2_015643

EQIP: Environmental Quality Incentives Program
- https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/

RCPP_EQIP: Regional Conservation Partnership Program
- https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/rcpp/

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Crops Included

Crop	Certified	Draft	Partial Certified	Planned	Planned FA	Grand Total
No Crops	8180	1	14	4261	2	12458
Forage/Hay	6373	10	58	3298		9739
Wheat	1782	1		435		2218
Trees	1375		3	651		2029
Vegetables	581		22	259		862
Fruits	501		3	267		771
Corn	539			167		706
Cotton	468		1	134		603
Nuts	373		1	127		501
Other Crop	188	1		165		354
Rice	127			170		297
Grapes	132		1	67		200
Berries	76		5	70		151
Sorghum	48			33		81
Ornamental Plants	64		2	8		74
Peanuts	39			3		42
Potatoes	33					33
Oats	22			9		31
Grass Seed	10			15		25
Soybeans	10			12		22
Barley	12			3		15
Sod	12					12
Sugarcane	12					12
Null	3			7		10
Oil Seed	7					7

Practices Included

Practice Name	Certified	Draft	Partial Certified	Planned	Planned FA	Grand Total
Brush Management	1817		1	491		2309
Rangeland Annual Payment	1879	4		186	2	2071
Fence	1230		2	594		1826
Grassland Conservation Initiative	572			1219		1791
Watering Facility	938		7	594		1539
Cropland Annual Payment	1294	1		143		1438
Structure for Water Control	886	1	16	441		1344
Pasture and Hay Planting	806		3	392		1201
Pasture Annual Payment	1067			100		1167
Livestock Pipeline	666		4	405		1075
Prescribed Grazing	592			436		1028
Pumping Plant	633		8	260		901
Irrigation Pipeline	579		13	229		821
Cover Crop	451			226		677
Water Well	444		5	159		608
Woody Residue Treatment	443			123		566
Irrigation Water Management	321		1	227		549
Forest Stand Improvement	428			117		545
Heavy Use Area Protection	326		2	191		519
Herbaceous Weed Treatment	224			266		490
Existing Activity Payment-Land Use	65			415		480
Forage and Biomass Planting	434			9		443
Combustion System Improvement	352		2	79		433
Irrigation System, Microirrigation	335		13	82		430
Existing Activity Payment-Resource Concern	54			351		405
Irrigation System, Surface and Subsurface	214	1	9	89		313
Sprinkler System	241		1	65		307
Non-Industrial Private Forest Land Annual Payment	261			14		275
High Tunnel System	186		13	65		264
Nutrient Management	153			102		255
Pastured Cropland Annual Payment	243			6		249

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Practice Name	Certified	Draft	Partial Certified	Planned	Planned FA	Grand Total
Irrigation Land Leveling	163			68		231
Range Planting	131			88		219
Pond	95		1	49		145
Minimum Payment Adjustment	119			15		134
Herbaceous Weed Control	123			3		126
Irrigation Ditch Lining	92		2	29		123
Prescribed grazing that improves or maintains riparian and watershed function-erosion	56			62		118
TA Design	70	2		30		102
Grade Stabilization Structure	73			26		99
Grazing management for improving quantity/quality of plant structure/composition for wildlife	48			46		94
Tree/Shrub Establishment	64			27		91
Land Smoothing	55			34		89
Incorporating wildlife refuge areas in contingency plans for wildlife.	1			87		88
Diversion	54		2	32		88
Maintaining quantity and quality of forage for animal health and productivity	40			45		85
Farmstead	48			37		85
Structures for Wildlife	47			37		84
Pest Management Conservation System	39			43		82
Conservation Crop Rotation	56			22		78
Tree/Shrub Site Preparation	56			20		76
Critical Area Planting	42			34		76
Mulching	47			26		73
Residue and Tillage Management, Reduced Till	49			22		71
Tree/Shrub Pruning	46			23		69
Use of body condition scoring for livestock on a monthly basis to keep track of herd health	3			64		67
Prescribed grazing that improves or maintains riparian/watershed function-elevated water temperature	33			32		65
TA Check-Out	23	2		38		63
TA Application	23	2		38		63
Reduce risk of pesticides in surface water by utilizing precision pesticide application techniques	28			32		60
Upland Wildlife Habitat Management	32			27		59
Irrigation Reservoir	34			22		56
Conservation Cover	34			22		56
Underground Outlet	17		2	35		54
Wetland Wildlife Habitat Management	50					50
Firebreak	32			18		50
Prescribed Burning	28			17		45
Herbaceous weed treatment to create plant communities consistent with the ecological site				42		42
Streambank and Shoreline Protection	20			18		38
Associated Ag Land	23			12		35
Hedgerow Planting	12			21		33
Spring Development	21		1	10		32
Residue and Tillage Management, No Till	13			19		32
Well Decommissioning	26			5		31
Precision Land Forming	24			7		31
Improved grazing management for plant productivity/health through monitoring	15			14		29
Forage Harvest Management	11			18		29
Roof Runoff Structure	14			14		28
Windbreak/Shelterbelt Establishment	22			5		27
Manipulate vegetation on fields where rainfall is to be captured and retained-food	7			17		24
Close structures to capture and retain rainfall to improve cover and shelter for birds during winter	7			17		24
Waste Storage Facility	16			7		23
Incorporating "wildlife friendly" fencing for connectivity of wildlife food resources	3			20		23
Reduce risk of pesticides in surface water by utilizing IPM PAMS techniques	12			10		22
Access Road	13		1	8		22
Obstruction Removal	16			5		21
Seasonal High Tunnel for Crops	20					20
Reduce risks of nutrient losses to surface water by utilizing precision ag technologies	15			5		20
Manipulate vegetation on fields with captured rainfall for waterfowl & wading bird winter habitat	2			18		20
Field Operations Emissions Reduction	11			9		20
Cover crop to suppress excessive weed pressures and break pest cycles	2			18		20
Provide early successional shorebird habitat between first crop and ratoon crop	1			18		19
Groundwater Testing	15			4		19
Dust Control on Unpaved Roads and Surfaces	16			3		19

Practice Name	Certified	Draft	Partial Certified	Planned	Planned FA	Grand Total
Subsurface Drain	14			4		18
Fuel Break	11			7		18
Terrace	10			7		17
Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity				17		17
Farmstead Energy Improvement	9			8		17
Comprehensive Nutrient Management Plan - Written	16			1		17
Improving nutrient uptake efficiency and reducing risk of nutrient losses to surface water	11			5		16
Grazing Land Mechanical Treatment	11			5		16
Grassed Waterway	16					16
Stream Crossing	8			7		15
Roofs and Covers	10			5		15
Livestock Shelter Structure	3			12		15
Improving nutrient uptake efficiency and reducing risk of nutrient losses	1			14		15
Cover crop to minimize soil compaction	8			7		15
Close structures to capture and retain rainfall for waterfowl and wading bird winter habitat				15		15
No till to reduce water erosion	8			6		14
Agricultural Energy Management Plan - Written	13			1		14
Conservation cover to provide food habitat for pollinators and beneficial insects	11			2		13
Reduced tillage to reduce water erosion	5			7		12
Integrated Pest Management (IPM)	12					12
Improving nutrient uptake efficiency and reducing risk of nutrient losses to groundwater	5			7		12
Grazing management that improves Monarch butterfly habitat	5			7		12
Early Successional Habitat Development and Management	12					12
Nutrient Management Plan	11					11
Improved grazing management for enhanced plant structure and composition for wildlife				11		11
Forest Management Plan - Written	**10**			**1**		**11**
Energy Efficient Lighting System	9			2		11
Energy Efficient Building Envelope	10			1		11
Acquisition Process - Appraisal Technical Review First Review				11		11
Reduce forest stand density to create open stand structure				**10**		**10**
Long-Term Protection of Land - Permanent Easement				10		10
Lined Waterway or Outlet	6			4		10
Intensive cover cropping to increase soil health and soil organic matter content	5			5		10
Herbaceous weed control (plant pest pressures) for desired plant communities/habitats	8			2		10
Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape	3			7		10
Grazing management that protects sensitive areas -surface or ground water from nutrients	2			8		10
Establish Monarch butterfly habitat	6			4		10
Brush management that maintains or enhances wildlife or fish habitat	7			3		10
Acquisition Process - Environmental Database Records Search				10		10
Waste Treatment	8			1		9
Waste Transfer	2			7		9
Res. & Tillage Mgt, Mulch-till	9					9
Reduced tillage to increase soil health and soil organic matter content	7			2		9
Reduce risk of pesticides in water and air by utilizing IPM PAMS techniques				9		9
Pond Sealing or Lining, Flexible Membrane	8			1		9
Amendments for Treatment of Agricultural Waste	8			1		9
Well Water Testing	8					8
Reduce risks of nutrient loss to surface water by utilizing precision agriculture technologies				8		8
Reduce ozone precursor emissions related to pesticides by utilizing IPM PAMS techniques	5			3		8
Open Channel	4			4		8
Cover crop to reduce wind erosion	6			2		8
Manage existing shrub thickets to provide adequate shelter for wildlife				7		7
Supplemental Payment Improved	6					6
Shallow Water Development and Management				6		6
Residue and Tillage Management, No-Till	6					6
Mulching to improve soil health				6		6
Irrigation Field Ditch	4			2		6
Integrated Pest Management	6					6
Herbaceous weed control for desired plant communities/habitats consistent with the ecological site	6					6
Field Border	5			1		6
Create patch openings to enhance wildlife food sources and availability	6					6
Controlled traffic farming to reduce compaction	4			2		6
Advanced Automated IWM - Year 2-5, soil moisture monitoring				6		6

Practice Name	Certified	Draft	Partial Certified	Planned	Planned FA	Grand Total
Waste Separation Facility	2			3		5
Use of multi-species cover crops to improve soil health and increase soil organic matter	3			2		5
Stream Habitat Improvement and Management	3			2		5
<mark>Snags, den trees, and coarse woody debris for wildlife habitat</mark>				5		5
Sediment Basin	3			2		5
Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat	1			4		5
<mark>Reduce forest density and manage understory along roads to limit wildfire risk and improve habitat</mark>				5		5
Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner	1		1	3		5
Improved grazing management through monitoring activities				5		5
Grazing management for improving quantity and quality of food or cover and shelter for wildlife	1			4		5
Forage plantings that can help increase organic matter in depleted soils	4			1		5
Eliminate use of chemical treatments to control pests and to increase the presence of dung beetles				5		5
Clipping mature forages to set back vegetative growth for improved forage quality				5		5
Water Harvesting Catchment	2			2		4
Water and Sediment Control Basin	1			3		4
Tree & Shrub Site Preparation	4					4
Technical Assistance Design	4					4
Stockpiling cool season forage to improve plant productivity and health				4		4
Soil health crop rotation				4		4
Short-interval burns to promote a healthy herbaceous plant community				4		4
<mark>Riparian Forest Buffer</mark>	2			2		4
Restoration of Rare or Declining Natural Communities	1			3		4
Reduce particulate matter emissions by using orchard or vineyard generated woody materials as mulch				4		4
Range Bundle 4				4		4
Prescribed grazing that maintains/improves riparian/watershed function impairment from nutrients	2			2		4
Pond Sealing or Lining, Soil Dispersant	4					4
No till to increase plant-available moisture: moisture management	3			1		4
Modify field operations to reduce particulate matter				4		4
<mark>Maintaining and improving forest soil quality</mark>				4		4
Leave standing grain crops unharvested to benefit wildlife				4		4
Improving nutrient uptake efficiency and reducing risks to air quality - emissions of GHGs	3			1		4
Improved grazing management for water erosion through monitoring activities	2			2		4
Improved grazing management for soil compaction through monitoring activities	2			2		4
Improved grazing management for soil compaction on rangeland through monitoring activities	2			2		4
Herbaceous weed control (inadequate structure and comp) for desired plant communities/habitats	2			2		4
Grazing management for improving quantity and quality of cover and shelter for wildlife	3			1		4
Forage harvest to reduce water quality impacts by utilization of excess soil nutrients				4		4
Establish pollinator and/or beneficial insect food habitat	4					4
Erroneous Underpayment	3			1		4
Edge feathering for wildlife cover				4		4
Deep Tillage	4					4
Cultural plantings	2			2		4
<mark>Creating structural diversity in dry Western forests</mark>				4		4
Cover crop to reduce soil erosion				4		4
Conservation Plan Supporting Organic Transition - Written	2			2		4
Conservation crop rotation to reduce the concentration of salts	3			1		4
Complete pumping plant evaluation for all pumps on a farm.	1			3		4
Channel Bed Stabilization	1			3		4
Biochar production from woody residue				4		4
Aquatic Organism Passage	4					4
Advanced IWM--Soil moisture is monitored, recorded, and used in decision making	4					4
Advanced Automated IWM - Year 2-5, Soil moisture is monitored, recorded and used in decision making	1			3		4
Strategically planned, patch burning for grazing distribution and wildlife habitat				3		3
Sequential patch burning				3		3
Riparian Herbaceous Cover	2			1		3
Restoration and Management of Rare and Declining Habitats	1			2		3
Range planting for increasing/maintaining organic matter	3					3
Nutrient Management Plan - Written	2			1		3
Land Clearing				3		3
<mark>Increase riparian forest buffer width to enhance wildlife habitat</mark>	2			1		3
Improving nutrient uptake efficiency and reducing risk of nutrient losses on pasture				3		3
Implementing sustainable practices for pine straw raking				3		3
Herbaceous Wind Barriers	1			2		3

Practice Name	Certified	Draft	Partial Certified	Planned	Planned FA	Grand Total
Forest Trails and Landings	3					3
Conservation cover to provide habitat continuity for pollinators and beneficial insects	1			2		3
Agricultural Energy Management Plan (AgEMP)	3					3
Windbreak/Shelterbelt Renovation				2		2
Wildlife Habitat Planting				2		2
Water Well Decommissioning	2					2
Water & Sediment Control Basin	2					2
Tree/shrub planting for wildlife food				2		2
TA Check-Out (No)	2					2
TA Application (No)	2					2
Stockpiling cool season forage to improve structure and composition or plant productivity and health				2		2
Forest songbird habitat maintenance				2		2
Forest Management Plan	2					2
Equitable Relief Payment	2					2
Dike	1			1		2
Creating structural diversity with patch openings				2		2
Comprehensive Nutrient Management Plan	2					2
Building Envelope Improvement	2					2
Access Control	1			1		2
Well Plugging	1					1
Waste Facility Closure	1					1
Tree & Shrub Establishment	1					1
Trails and Walkways	1					1
TA Design (No)	1					1
Summer roosting habitat for native forest-dwelling bat species				1		1
Stream habitat improvement through placement of woody biomass				1		1
Reduce height of the forest understory to limit wildfire risk				1		1
Reduce forest stand density to improve a degraded plant community	1					1
Range planting for improving forage, browse, or cover for wildlife	1					1
Planting for high carbon sequestration rate				1		1
Other Payment	1					1
No till system to reduce wind erosion	1					1
Native grasses or legumes in forage base to improve plant community structure and composition	1					1
Lighting System Improvement	1					1
Leave standing grain crops unharvested to benefit wildlife food sources	1					1
Irrigation System, Sprinkler	1					1
Intermediate IWM - Year 1, Equipment with Soil or Water Level monitoring				1		1
Installing electrical fence offsets and wire for cross-fencing to improve grazing management	1					1
Increase stream shading for stream temperature reduction				1		1
Forest management to enhance understory vegetation				1		1
Forage plantings that help increase organic matter in depleted soils				1		1
Forage and biomass planting that produces feedstock for biofuels or energy production.				1		1
Establishing tree/shrub species to restore native plant communities				1		1
Enhanced field border to provide wildlife food for pollinators along the edge(s) of a field	1					1
Emergency Animal Mortality Management	1					1
Conservation Plan Supporting Organic Transition	1					1
Conservation cover to provide cover and shelter habitat for pollinators and beneficial insects				1		1
Conservation cover for pollinators and beneficial insects				1		1
Composting Facility	1					1
Complete pumping plant evaluation for energy savings				1		1
Complete pumping plant evaluation for all existing pumps on a farm=	1					1
Clearing and Snagging	1					1
Brush management to improve wildlife habitat				1		1
Animal Mortality Facility	1					1
Agrichemical Handling Facility				1		1
Acquisition Process - Appraisal Technical Review Second Review				1		1

Initiatives Included

Initiative	Certified	Draft	Partial Certified	Planned	Planned FA	Grand Total
Locally Led	6116	2	21	2525		8664
Null	5411	11	4	765	2	6193
Socially Disadvantaged	2466		21	918		3405
Strike Force Initiative	1899		17	714		2630
CSP-GCI	572			1220		1792
State	1108		20	388		1516
Agricultural Lands - General	155			819		974
Beginning Farmer/Rancher	358		2	406		766
Agricultural Lands - Socially Disadvantaged	136			580		716
Wildlife 10%	294		1	315		610
Air Quality National	341		1	89		431
WaterSmart	95		19	182		296
Drought Recovery	210			12		222
National Water Quality	124			68		192
Wildlife 5%	112			72		184
NIPF - Socially Disadvantaged				137		137
Agricultural Lands - Beginning Farmer	21			113		134
Air Quality State	107			24		131
NIPF - General	15			98		113
Bay Delta	109					109
Sage-Grouse Initiative	37			60		97
Lower Rio Grande Valley	97					97
Forest Service Partnership	91			5		96
Organic Transition	53			40		93
High Tunnel System	91			2		93
LCRA Regional Conservation Partnership Program	8			82		90
Gulf Coast Water and Wildlife Conservation	21			62		83
Organic Certified	53			25		78
Disaster Recovery	34			42		76
Canadian River Watershed Restoration Project	70			6		76
North Central NM Watershed Restoration Project	28			47		75
Indian, Tribal	32			42		74
On-Farm Energy	42			24		66
Hurricane Recovery	58		2	2		62
Everglades	53			7		60
NIPF - Beginning Farmer	17			38		55
Long Leaf Pine Initiative	40			11		51
The Acequia Initiative	7		2	41		50
New Mexico Range and Forest Soil Health Initiative	19			30		49
Air Quality Priority	49					49
California Bay Delta	41					41
Wallow Lake Irrigation Modernization	39			1		40
Ogallala Initiative	36					36
North Coast Oak Woodland Conservation Project	18			18		36
Planning	32			3		35
New Mexico Restoration Initiative	31			3		34
Monarch Butterfly Project	32					32
G Tortoise WLFW	28			2		30
Salton Sea Agricultural Wetlands Habitat Program	10			15		25
Watershed Restoration	23					23
SanDiego CountyPartnersAgriculturalSustainability	3			19		22
ACEP-ALE General				22		22
Gulf of Mexico Initiative	19					19
Sage Grouse	18					18
Columbia River Basin	18					18
Crisis to Opportunity: Sierra Nevada Tree Mortalit				16		16
Lesser Prairie Chicken Initiative	15					15
Catastrophic Fire Recovery	2			12		14
Colorado Rio Grande RCPP	12					12

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Initiative	Certified	Draft	Partial Certified	Planned	Planned FA	Grand Total
Pacific Northwest	9			2		11
ACEP-ALE GSS Sage Grouse				10		10
SWN Flycatcher WLFW	1			8		9
Limited Applied Irrigation Assistance Program	8			1		9
Joint Chief	5			4		9
Prairie Grasslands Region	7					7
Improving Working Lands for Monarch Butterflies				7		7
On-Farm Energy CAPS	6					6
Training Florida's Natural Resource Managers	2			3		5
Hill Country Headwaters Conservation Initiative	1			4		5
WRIA 1 Salmon Recovery & Water Quality Improvement	2					2

Appendix B: Agencies and Resources

Financial Assistance

Farm Credit
Farm Credit supports rural communities and agriculture with reliable, consistent credit and financial services, today and tomorrow. Use their website to locate the office that serves you.

https://farmcredit.com/locations?zip=

Natural Resources Conservation Service
NRCS provides America's farmers and ranchers with financial and technical conservation-related assistance, not only helping the environment but agricultural operations, too. Use their website to locate the office that serves you.

https://www.nrcs.usda.gov/wps/portal/nrcs/sitenav/national/states/

Farm Service Agency
Farm Service Agency is equitably serving all farmers, ranchers, and agricultural partners through the delivery of effective, efficient agricultural programs for all Americans. Use their website to locate the office that serves you.

https://www.fsa.usda.gov/state-offices/index

Forest Management

National Association of State Foresters
The National Association of State Foresters is a non-profit organization composed of the directors of forestry agencies in the states, U.S. territories, and District of Columbia to manage and protect state and private forests. Use their website to locate the state forestry agency that serves you.

https://www.stateforesters.org/

Technical Assistance

Natural Resources Conservation Service
NRCS provides America's farmers and ranchers with financial and technical conservation-related assistance, not only helping the environment but agricultural operations, too. Use their website to locate the office that serves you.

https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/

National Association of State Departments of Agriculture
NASDA consists of the Departments of Agriculture in all 50 states and four territories, including Puerto Rico. Use their website to locate the office that serves you.

https://www.nasda.org/states/state-directory

National Association of Conservation Districts
The National Association of Conservation Districts (NACD) is the nonprofit organization that represents America's 3,000 conservation districts and the 17,000 men and women who serve on their governing boards. Use their website to locate the office that serves you.

https://www.nacdnet.org/

Cooperative Extension
Cooperative Extension at Land Grant Universities consists of scientists, educators, and extension staff who address critical issues about agriculture, food, the environment, and communities. Use their website to locate the office that serves you.

https://nifa.usda.gov/land-grant-colleges-and-universities-partner-website-directory

Legal Assistance

American Bar Association
Our mission is to equally serve our members, our profession and the public by defending liberty and delivering justice as the national representative of the legal profession.

https://www.americanbar.org/groups/legal_services/flh-home/flh-bar-directories-and-lawyer-finders/

Legal Services Corporation
LSC is an independent nonprofit established by Congress in 1974 to provide financial support for civil legal aid to low-income Americans. The Corporation currently provides funding to 133 independent nonprofit legal aid organizations in every state, the District of Columbia, and U.S. Territories.

https://www.lsc.gov/about-lsc/what-legal-aid/get-legal-help

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Appendix C: Agroforestry

Information below was directly taken from the following website: https://www.forestasyst.org/agroforestry.html

Forest* A *Syst
Tools to Protect, Enhance and
Manage Private Woodlands

Many landowners and land managers do not realize that forest management can be purposefully coupled with agriculture. This intentional act of combining agriculture and forestry to create integrated and sustainable land-use systems is called agroforestry. While this concept may be new to many, agroforestry as a system is relatively old, existing in many parts of the world.

Another key aspect of agroforestry is that it provides both economic and environmental benefits simultaneously. These benefits include protection against loss of topsoil, regeneration of soil fertility, crop and livestock protection, diversification of products and protection against the risk associated with volatile commodity markets, wildlife habitat enhancement, enhanced aesthetics, water quality management, waste management, and carbon sequestration.

Today, agroforestry is often associated with tropical climates, however it is a land-use system that is also successfully applied in temperate climates. This includes most of the United States except for the majority of Alaska and the southern most parts of Texas and Florida.

So what exactly is agroforestry and how might it benefit you as a landowner or land manager? It is an intentional, intensive, integrated system that takes advantage of the interactive benefits derived from combining trees and shrubs with crops and/or livestock, and it has proven successful in many regions across the United States. In other words, it means putting the right plant, in the right place, for the right purpose.

There are also several special applications worth consideration. While most agroforestry practices can be applied almost anywhere in the United States, climate, soil type, and rainfall remain limiting factors. A professional can help you decide which practices are most appropriate in your particular situation.

Silvopasture
Silvopasture is a form of agroforestry that combines trees with forage and livestock production. The trees in a silvopasture system are typically managed for high-value sawlogs and, at the same time, provide shade and shelter for livestock and forage. The partial shade throughout a silvopasture can reduce stress on the animal, and in some cases, it can increase forage production and quality. In plantations of conifers or hardwoods for timber or Christmas trees, managed grazing provides additional annual income from hay or livestock production. Silvopasture is a particularly popular agroforestry system in the Southeast, but it is becoming more popular in other areas across the country where coniferous trees exist. Some nut (e.g., walnut and pecan) and fruit orchards may also be managed as a silvopasture.

Silvopasture is successful when the tree, forage, and livestock components are all compatible.

Alley Cropping
Alley cropping is a type of agroforestry that involves growing an agricultural crop simultaneously with a long-term tree crop. It is broadly defined as widely spaced rows of trees and/or shrubs (single or multiple), that create alleyways within which agricultural crops or horticultural crops are produced. Alley cropping is usually done with the specific purpose of providing annual income while the tree crop matures. Fine

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hardwoods, like walnut, oak, and pecan, are favored species in alley cropping systems and can potentially provide high-value lumber or veneer logs. Nut crops can be an intermediate product. In addition to cash crops such as corn, squash, and melon, fruit bearing shrubs such as blueberry and ornamentals can be grown in the alleyways.

Forest Farming
Forest farming is a specific form of agroforestry that involves the cultivation of high-value non-timber crops under the protection of a forest canopy that has been modified to provide the shade level appropriate for a specific crop. Ginseng, shiitake mushrooms, and decorative ferns are all crops that are typically cultivated under forest cover and are sold for medicinal, culinary, and ornamental uses. Forest farming provides annual income while high-quality trees are being grown on a longer rotation for wood products. Additionally, forest farming can promote biodiversity by reestablishing previously exploited, naturally occurring plants. The diversity created with forest farming can also attract a variety of wildlife species.

Riparian Forest Buffers
Riparian forest buffers are a form of agroforestry that involves the natural or re-established streamside forests made up of trees, shrubs, and grasses. They intercept and reduce the impact of non-point source pollution associated with agricultural operations on land adjacent to waterways. Riparian forest buffers also reduce bank erosion, protect aquatic environments from excess nutrients and sedimentation, enhance wildlife, and increase biodiversity.

Windbreaks/Shelterbelts
Windbreaks are linear plantings of trees and shrubs designed to enhance crop production and protect people, livestock, soil, and water. There are several types of windbreaks. Field windbreaks protect a variety of wind-sensitive crops, control wind erosion, and increase bee pollination and pesticide effectiveness. They can also spread snow evenly across a field, increasing spring soil moisture. Livestock windbreaks help reduce animal stress and mortality, reduce feed consumption, and help reduce visual impacts and odors. Living snowfences keep roads clear of drifting snow and increase driving safety. All properly designed windbreaks provide protection for wildlife from harsh winds. Over 50 bird species are known to use windbreaks during the breeding season.

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