

# **A Social Assessment of Hoosier National Forest Managers Report**

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## **Preface**

This report is a summary, or managers version, of a longer report (Welch et al. 2000) on a social assessment of Hoosier National Forest (HNF). The sections of this document relate to more comprehensive sections in the unabridged report. The following list of topics identifies the sections in the full report (in parentheses) that correspond to topics in this Managers Report.

1. The economic and social characteristics of the HNF region (Section 4)
2. Social and cultural trends in the HNF region (Sections 1 and 4)
3. The uses and users of Hoosier National Forest (Section 6)
4. The values of the stakeholders (Section 6)
5. Relationship between the communities and HNF (Section 5)
6. Perceptions of ecosystem management issues and conflicts between users and managers (Section 6)

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## **A Social Assessment of the Hoosier National Forest**

Socioeconomic and cultural factors of the communities surrounding a national forest affect the uses made of U.S. Forest Service land holdings. Forest managers are increasingly considering these factors in their revisions of forest management plans. Socioeconomic and cultural factors of interest include the demographic and economic characteristics of communities near a forest as well as indicators of the values, beliefs, and views of individuals living near national forests. Socioeconomic and cultural data are important components to the set of information land managers use to make decisions about management of public forests. A social assessment is a tool that provides this socioeconomic and cultural information (Jakes et al. 1998) and measures perceptions, interests, and expectations that individuals have concerning a forest, its management, and communities in the region. Community-level information derived from historical, demographic, and economic data supplement the individual-level analysis. The combined individual- and community-level information indicates the needs, expectations, and values of residents in and near a national forest.

In preparation for revising their forest management plan, personnel at Hoosier National Forest (HNF) in Indiana sponsored the implementation of a social assessment. Researchers from the Center for the Study of Institutions, Population, and Environmental Change (CIPEC at Indiana University) with the cooperation of the Bedford, Indiana, office of the Forest Service conducted a social assessment of the region in and near Hoosier National Forest during the summer of 2000. Results of this social assessment build on previous work conducted by the Forest Service during the development of the 1990 Draft Environmental Impact Statement and Management Plan that identified key management issues faced by Hoosier National Forest. This social assessment includes an historical overview, an analysis of county-level census data, and results of interviews with stakeholders of the forest.

Researchers interviewed a total of 101 respondents. These respondents were selected from : (1) Forest Service lists of individuals deemed to be concerned about the management of the Hoosier National Forest, (2) individuals who participated in a previous CIPEC study regarding public land management in southern Indiana (Vasenda et al. 2000), and (3) a network of individuals that CIPEC has been in contact with regarding forestry issues in the

region surrounding and including the Hoosier National Forest. The final collection of respondents represented a wide array of user groups and perspectives. The interviews included oral questions about the views of uses and management of the forest and a map exercise in which respondents identified communities and described how these defined communities used the Hoosier National Forest. We organized the interview around eight broad questions:

1. What are the social and economic characteristics of the surrounding geographical region?
2. What recent social and economic trends are occurring in the area?
3. What are the human uses of the area?
4. Who are the users?
5. What values do the stakeholders and public hold related to the environment and natural resources?
6. What is the nature of the relationship between the community, the forest, and the ecosystem?
7. What are the stakeholder and public perceptions related to ecosystem management issues?
8. What conflicts exist among the users and the managers?

This document is an abridged summary supplement to a more detailed final report (Welch et al. 2001) and covers the answers to these eight questions in a more condensed manner. We have composed this to cover the issues of highest priority concerning the management of the Hoosier National Forest. The brevity of this supplement does not allow the inclusion of detailed information and explanations that the full social assessment contains. Readers can therefore refer to the relevant section of the final report for further explanation.

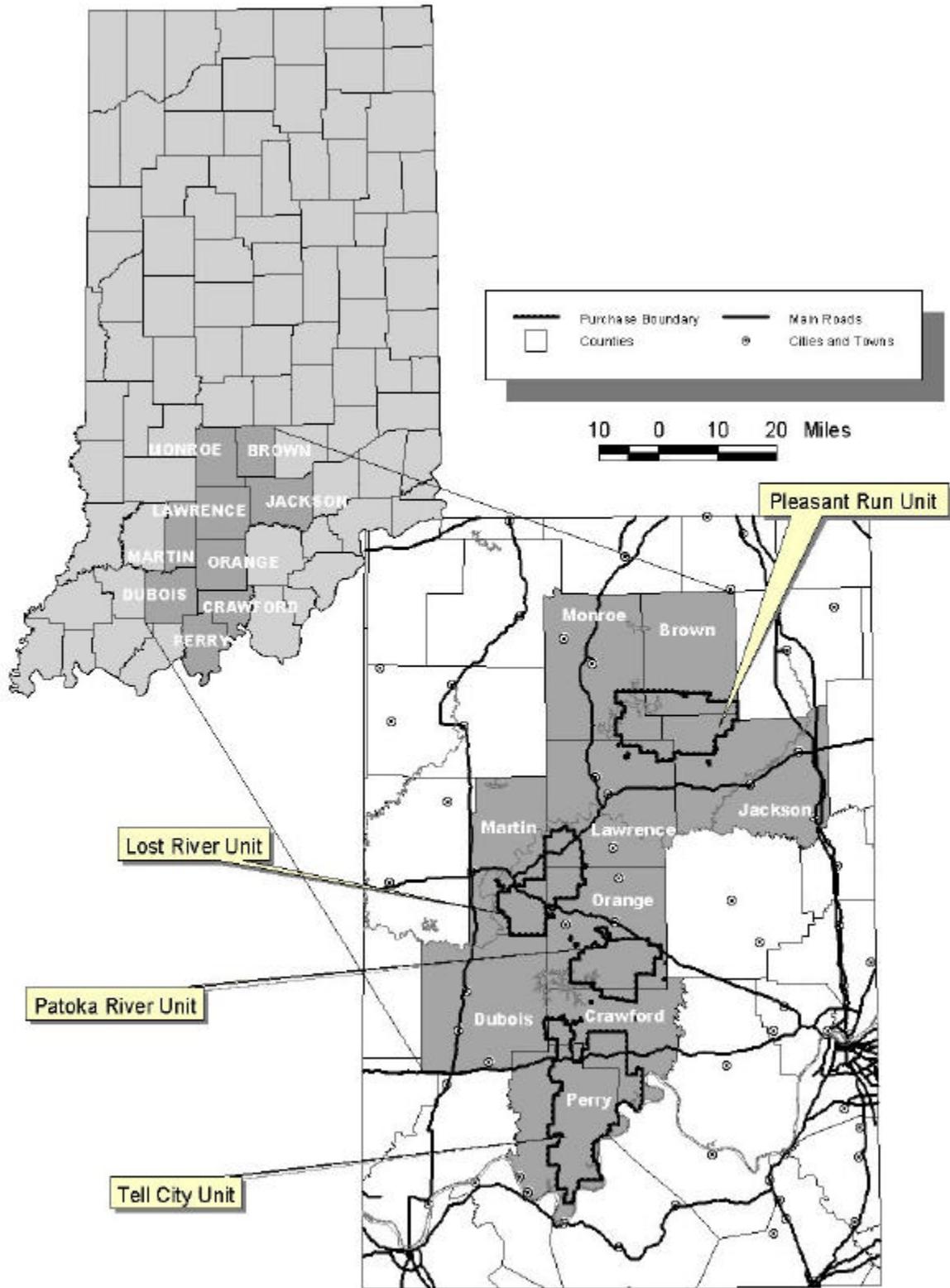
Our findings emphasize the importance of different scales of analysis in identifying different perceptions and values associated with forest management. This report includes data at the individual and group/community levels. Analysis of the socioeconomic data of counties and interview responses serves to describe the community-level concerns. Identifying the scale to which each of the eight questions are focused can help to explore the underlying processes and conditions that can affect the management of the Hoosier National Forest.

### ***Overview of Hoosier National Forest***

In contrast to some national forests in the western United States, Hoosier National Forest is comprised of land that was previously inhabited for many years and extensively modified. Much of the land in the forest today was still privately owned in the 1930s. The process of acquisition and management of land for HNF has been greatly influenced not only by the policies of the federal and state governments, but also by the political institutions acting at the county and community levels. The pattern of Hoosier National Forest land holdings is highly fragmented due to the incremental acquisition of land through purchases of private lands in and near the existing HNF land holdings and the establishment of four distinct management units. These four management units, Pleasant Run, Lost River, Patoka River, and Tell City, are not contiguous (see Figure 1). Within these four units, Hoosier National Forest has landholdings in Monroe, Brown, Crawford, Orange, Lawrence, Martin, Perry, Jackson, and Dubois counties (see Figure 1). Together, these counties comprise what we will refer to as the Hoosier Region, or the counties in which Hoosier National Forest is located.<sup>1</sup> The socioeconomic environment of the Hoosier Region and the evolution of this environment provides an important context for the eight questions framed in this report. A much more complete discussion of the history and evolution of HNF and the Hoosier Region is included in the unabridged report (Welch et al. 2001).

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<sup>1</sup> Delineation based on Sieber and Munson 1994.



**Figure 1. Location of the Hoosier Region and Management Units within Indiana**

***Questions 1 and 2: What are the social and economic characteristics of the surrounding geographical region? What recent social and economic trends are occurring in the area?***

We consider socioeconomic characteristics and trends in an historical context. South-central Indiana has gone through dramatic biophysical, cultural, and social changes since the time when settlers of European descent first arrived in Indiana in the 1600s. The legacy of historical factors, such as the economic depression of the 1930s, partially explains why Hoosier National Forest was established, its pattern of landholdings, and why socioeconomic and cultural characteristics vary so much across the region.

Socioeconomic data from counties in and near Hoosier National Forest provide a representation of the social and cultural structure of the region. Several broader-scale or community-level socioeconomic trends provide an important context for Hoosier National Forest management decisions. When compared to the rest of the state of Indiana and northern Kentucky, the counties composing the Hoosier Region are consistently ranked among the lowest counties on numerous poverty indicators. However, within the nine counties that contain Hoosier National Forest there is a significant range of key indicators on the county level, such as population, importance of economic activities, affluence, and farm loss.

This section summarizes the nine counties surrounding Hoosier National Forest and attempts to group them based on shared economic and social characteristics. Some counties can be distinguished according to their population, such as Monroe County. This county has experienced substantial urban growth since the 1940s. This urbanization is associated with a relatively rapid increase in population in Monroe County and the city of Bloomington compared to rates typical of the Midwest. Low population counties such as Crawford, Brown, and Orange share some important socioeconomic characteristics but differ greatly along other variables. The groupings therefore are not consistent: high population counties may share similar poverty indicators with low population counties. Monroe County is an anomaly in this region due to the presence of Indiana University. The student population (and associated low income levels) may contribute to the high incidence of poverty found in Monroe County (see Figures 2 and 3). This section provides data on selected socioeconomic variables and then synthesizes this information in order to discern patterns and relationships among the nine counties.

**Table 1. Percent of Jobs by County, 1997**

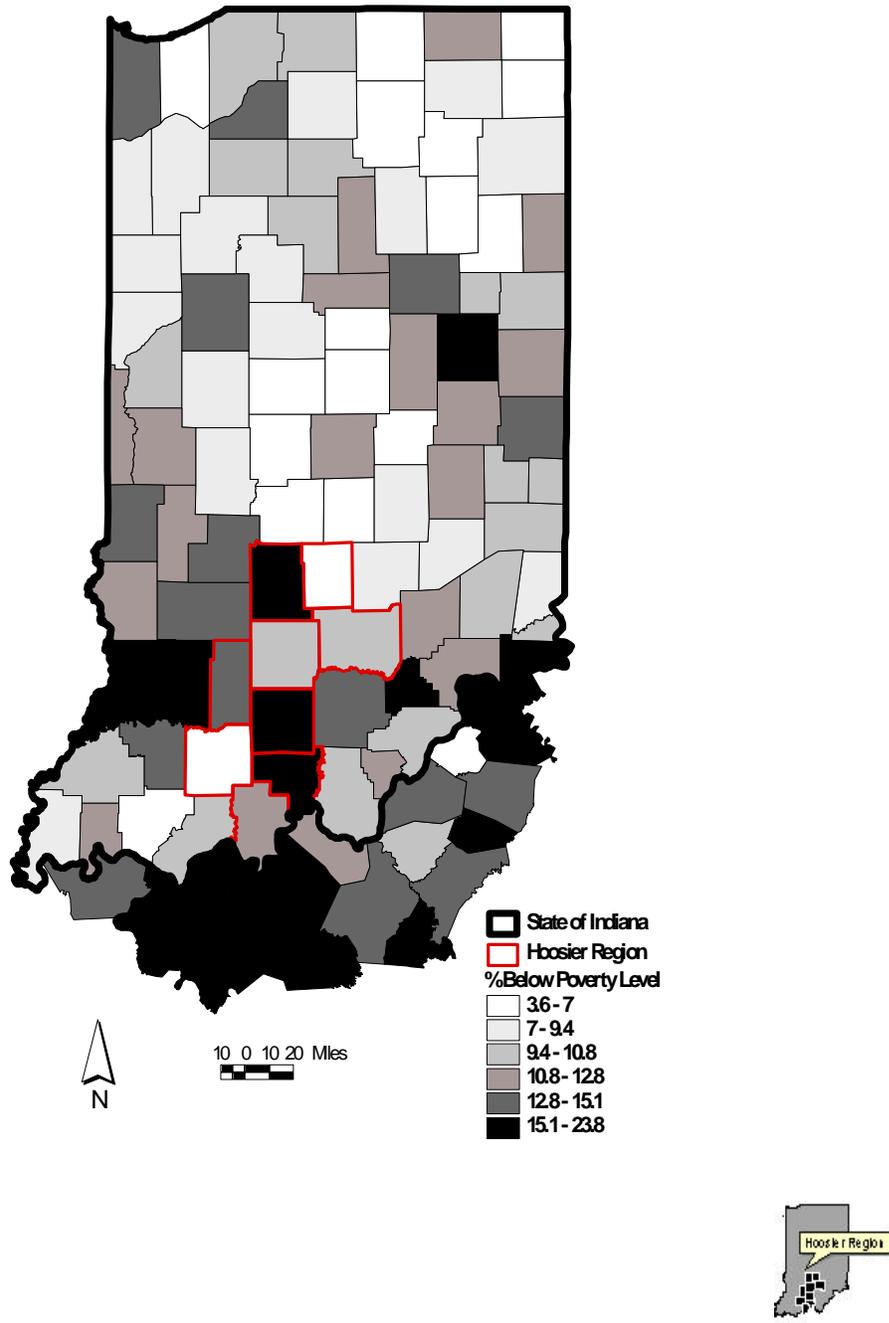
	Manufacturing (%)	Sawmills, Lumber, and Wood Products (%)	Construction (%)	Services (%)	Retail (%)
Brown	6.4	1.7	5.8	28.8	29.7
Crawford	5.0	9.3	13.4	18.3	34.6
Dubois	49.3	12.3	3.8	17.7	16.1
Jackson	35.4	2.7	4.0	22.5	26.4
Lawrence	38.1	0.6	3.7	24.8	24.5
Martin	27.4	1.0	7.7	17.8	27.4
Monroe	22.1	0.1	5.6	29.4	28.4
Orange	41.4	12.9	14.5	23.5	12.0
Perry	27.6	4.4	5.4	21.7	30.2

Source: STATS Indiana at [http://www.stats.indiana.edu/iiew\\_topic\\_page.html](http://www.stats.indiana.edu/iiew_topic_page.html)

This table shows that the nine counties have similar proportions of jobs in services, the widest range of proportions in manufacturing, and a considerable variance in the other categories. Jobs in sawmills, lumber, and wood products account for a relatively small proportion of jobs in these counties. Note: this is a selection of the job sectors available for each county, sectors like farm and government are not included.

Sawmills and lumber and wood products industries comprise a larger proportion of the jobs in Dubois, Crawford, and Orange counties than in the other counties, but these industries do not support a greater proportion of jobs than most of the other sectors included in Table 1. Manufacturing is most important in Dubois and Orange counties and is also very important in Jackson and Lawrence counties, with 35 percent or more of jobs in this industry. In contrast, Crawford and Brown rely less on manufacturing (less than 7 percent) and more on retail and service sectors (Table 1). Additionally, Crawford and Orange have relatively high proportions of their economies in the construction industry compared with the other counties, which suggests that these counties may be experiencing high rates of development (Table 1).

Some of the poorest counties in Indiana are located in the Hoosier Region. For example, the counties near Hoosier National Forest are home to a relatively large number of people below the U.S. official poverty level (Figure 2). Counties that have between approximately 15 and 25 percent of their populations below the poverty level are concentrated in the southern region of the state and northern parts of Kentucky.



Source: Census CD+Maps, 1990 Data

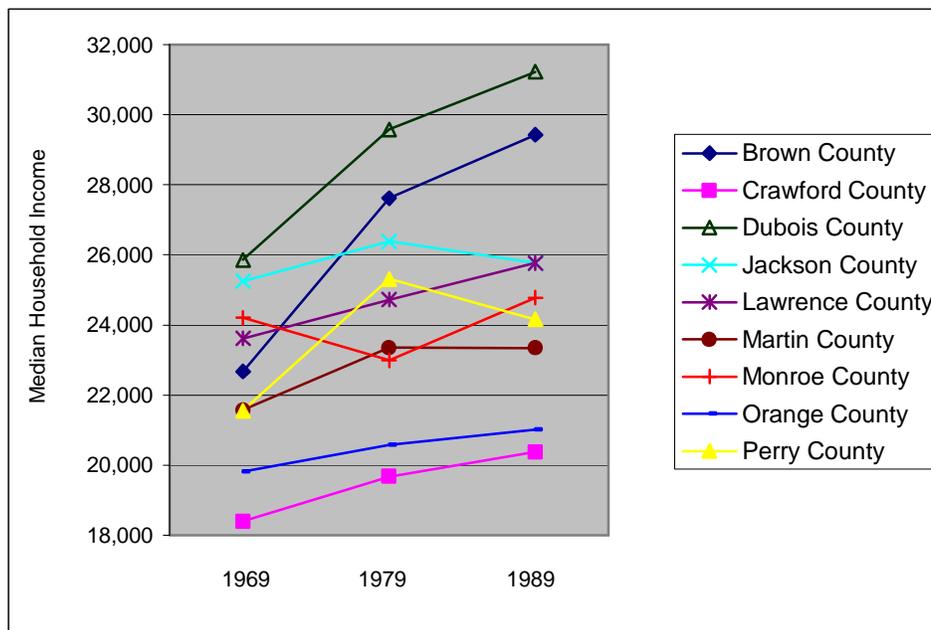
**Figure 2. Percent of Population below U.S. Official Poverty Level in Indiana and Northern Kentucky by County in 1990**

This figure illustrates the frequent occurrence of poverty in counties in Indiana and northern Kentucky by intensity of color. Both the region in and near Hoosier National Forest and the nearby counties have relatively high percentages of people below the poverty level. The counties in the study area with the highest poverty rates are Monroe, Crawford, and Orange counties.

Within the nine-county Hoosier Region, most of the counties have more than 9 percent of their populations below the poverty level; three counties were among those with the highest percentages of individuals below the poverty level in the state (see Figure 2, data from 1990). Two counties (Brown and Dubois) have among the lowest percentages of people below the poverty level in the state (between 3 and 7 percent). Although most of the counties in the region contain a large portion of residents in poverty, there is diversity in the degree of poverty within the nine-county Hoosier Region.

Our analysis also examined social and cultural trends within south-central Indiana. The most salient changes occurring in this region involve population, income, and farm acreage. These factors are important to the forest management process, and this report identifies interesting similarities and differences among counties within the Hoosier Region.

Figure 3 shows median household income for the counties in the Hoosier Region during 1969, 1979, and 1989 (adjusted to 1989 dollars). Crawford and Orange counties are consistently the two lowest counties in the region through the three decades. Median household income rose in Dubois and Brown counties after 1969, and, by 1979 and 1989, they were the top two in the region. The other four counties are clustered, with some shifts in ranking over time.

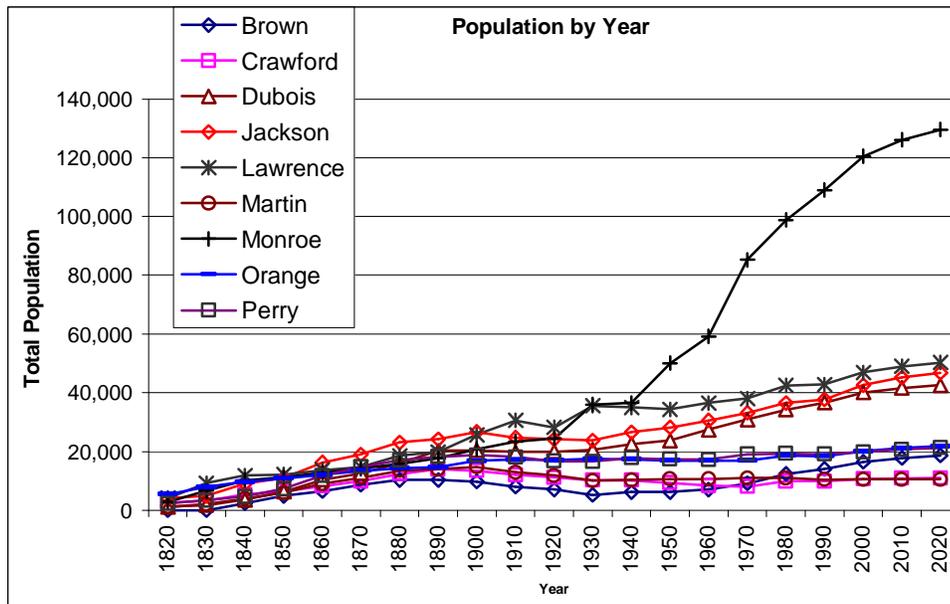


Note: Income is adjusted to the 1989 dollar.

Source: STATS Indiana at [http://www.stats.indiana.edu/web/taxes\\_topic\\_page.html](http://www.stats.indiana.edu/web/taxes_topic_page.html)

**Figure 3. Median Household Income for Counties in the Hoosier Region, 1969, 1979, 1989**

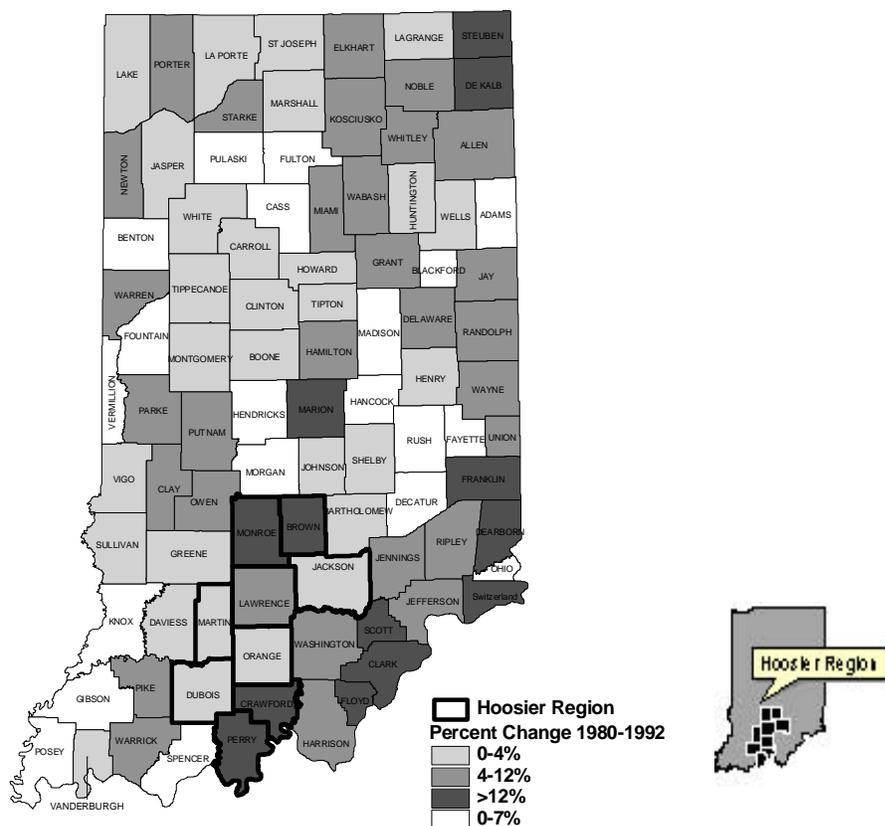
Population growth is another indicator of change in the Hoosier Region. Figure 4 illustrates the change in total population by county from 1820 (the first census year in which the Hoosier counties were reported) to projections for 2000, 2010, and 2020 (based on a 1997 estimate). The population growth in Monroe County is unusual in south-central Indiana (Figure 4). Rapid growth was first seen in the 1940s and continued fairly steadily over time. Since the post-World War II years of the 1940s, Lawrence, Jackson, and Dubois counties have experienced patterns of population growth similar to each other. Populations of the other counties increased until about 1890, after which they varied little over time.



Source: STATS Indiana and United States Historical Census Browser by ICPSR

**Figure 4. Population in the Hoosier Region, 1820–2020**

Since 1900, Monroe County has experienced the highest population growth of the counties in the Hoosier Region. At the other end of the scale, recent population totals for Crawford and Martin counties are lower than the totals for 1900. However, Crawford County did experience an increase in population between 1970 and 1980.



Source: Carver and Yahner 1997

**Figure 5. Loss in Acres of Land in Farms in Indiana by County, 1982–1992**

Within the Hoosier Region, Jackson and Dubois counties have relatively large farm populations. Dubois County has one of the highest values of farm products in the state. Jackson County also has a relatively high value of farm products. The economies of Jackson and Dubois counties differ from the other counties in the Hoosier Region in their dependence on farming. Between 1982 and 1992, Monroe, Lawrence, and Crawford counties each lost more than 15,000 acres of farmland (Figure 5); Brown County and Perry County lost 5,000–15,000 acres each; and Jackson, Martin, Orange, and Dubois each lost less than 5,000 acres. It is likely that the losses in Monroe and Lawrence counties are due to the urban expansion of Bloomington, and the loss in Crawford County is due to the expansion of Louisville.

We asked respondents about changes that have taken place in both the communities of the region and Hoosier National Forest. Common responses focused on the increased population in the region as a whole, suburbanization of areas increasingly close to HNF, and increased numbers of users and uses of the forest. Some participants viewed these changes as good from an economic standpoint, since suburbanization raises property values and higher property values increase tax revenue. Many others, however, had a negative view of the population growth because they like the rural character of the region and do not want to see that change. The participants' perceptions and concerns regarding the changes in the region are quite consistent with the demographic changes indicated through census information. The participants have noticed the increase in population and building in their communities and have also cited these demographic changes as having both a positive and negative impact on the natural environments in south-central Indiana.

To summarize key socioeconomic variables (population, affluence, and farm loss) we present their relative levels in the nine counties in Table 2. Orange, Crawford, Jackson, and Lawrence counties can be grouped together when considering population and affluence indicators. Along the three major indicators, however, no apparent patterns emerge. Crawford and Orange counties have similar population and affluence levels, but differ when comparing the amount of farm loss. Medium-sized counties (Dubois, Jackson, and Lawrence) tend to differ along the other two indicators. There does not appear to be a consistent correlation between any of these three indicators over all of the nine counties.

**Table 2. Summary Table of Key Social Indicators for the Nine-County Region**

	<b>Low</b>	<b>Medium</b>	<b>High</b>
<b>Population</b> <sup>1</sup>	Brown	Dubois	Monroe
	Crawford	Jackson	
	Martin	Lawrence	
	Orange		
	Perry		
<b>Affluence</b> <sup>2</sup>	Crawford	Jackson	Brown
	Orange	Lawrence	Dubois
		Martin	
		Monroe	
		Perry	
<b>Farm Loss</b> <sup>3</sup>	Dubois	Lawrence	Brown
	Jackson		Crawford
	Martin		Monroe
	Orange		Perry

<sup>1</sup> See Figure 4: low refers to a population level of about 20,000, medium 40,000–55,000 and high over 100,000.

<sup>2</sup> See Figures 2 and 3: low indicates a median income of about \$21,000 and high levels of poverty, 15–23%; medium indicates a range of \$23,000–\$26,000 and moderate levels of poverty, 9–15%; and high indicates a range of \$29,000–\$32,000 and low levels of poverty, 3.6–7%.

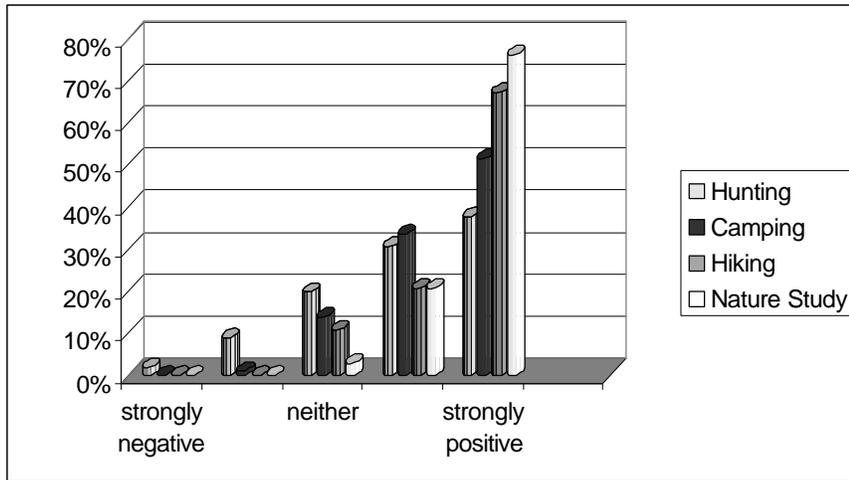
<sup>3</sup> See Figure 5: low, medium, and high denote farm loss of <4%, 4–12%, and >12%, respectively (1980–1992).

The high levels of farm loss coupled with high population growth in Monroe County suggest that land is being developed in this county to support the extra population. The farm loss in the more rural counties (Brown, Crawford, and Perry) coupled with less population growth suggests that there is a complex interaction taking place with land use in those areas. A more in-depth study may be required to ascertain the fate of this loss of farmland in the counties of southern Indiana. A primary question is to determine how much land is reverting to forest. More forest in private hands may make more forest resources available for the lumber market, but many small forest parcels under many different owners make widespread logging more difficult. Understanding the land cover and ownership changes on privately held lands is an important consideration in the relationship between Hoosier National Forest and the residents of south-central Indiana.

***Questions 3 and 4: What are the human uses of the area, and who are the users?***

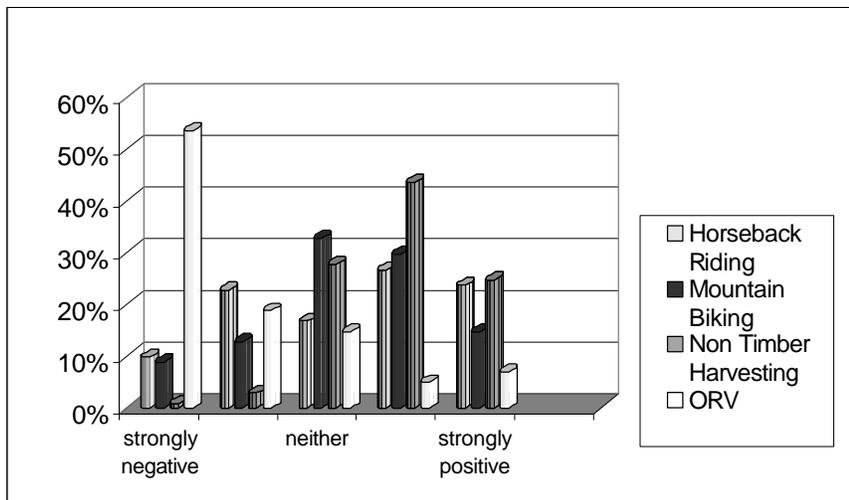
We also asked respondents about their views of particular uses of Hoosier National Forest. Responses to these questions indicate that there is a distinct set of uses that most

respondents approve of and other uses about which the participants expressed more mixed feelings. Four uses were generally well liked by the participants in this study: hiking, camping, nature study, and hunting. Views of horseback riding, mountain biking, non-timber harvesting, and off-road vehicle (ORV) uses were more divided, with some respondents favoring these uses and others opposing them.



**Figure 6. Activities Generally Perceived As Positive**

This figure shows a clear trend of four uses among the participants. Two-thirds or more of the interviewees liked or strongly liked these four activities (N=101).



**Figure 7. Activities with Mixed Perceptions**

This figure shows less of a trend with the participants. Sixty-five percent of the participants liked or strongly liked non-timber harvesting as a use of the forest. Less than half of the participants liked the other three uses of the forest (N=101).

Respondents were asked questions regarding whether they were members of any group concerned with the management or use of Hoosier National Forest. Sixty-eight percent of the respondents indicated they were members of such groups. From this subset, we created several categories of groups and classified respondents as members of hunting, horseback riding, hiker/backpacking, ORV, and environmental groups. Table 3 summarizes the views of the groups concerned with Hoosier National Forest. ORV users had a positive view of all of the activities asked in the survey. Horseback riders had a positive view of many of the activities, but had a more negative to neutral view of ORV use. Hunters held similar views of horseback riders, but had a more negative view of horseback riding. Three individuals from hunting groups expressed a highly negative view of horseback riders who stray from trails and interfere with the activities of hunters. Hikers/backpackers and environmentalists had a positive view of only non-timber harvesting, nature study, hiking, and camping and expressed a very negative view of ORV use. Many users indicated that there was a high degree of contestation in Hoosier National Forest. They cited the Deam Wilderness area of the Pleasant Run Management Unit as the area where most conflict occurred.

**Table 3. Views of Forest Activities by User Group**

	ORV <sup>1</sup> Groups	Horseback Riding Groups	Hunting Groups	Hiking/ Backpacking Groups	Environmental Groups
Hunting	++	+	++	+	-
Camping	++	++	++	++	++
Hiking	++	++	++	++	++
Nature Appreciation	++	++	++	++	++
Horseback Riding	++	++	-	-	-
Mountain Bicycling	+	+	+	-	-
Harvesting of Non-timber Products	+	+	++	+	++
ORV <sup>1</sup> Use	+	-	-	--	--

<sup>1</sup> ORV refers to off-road vehicles and includes motorized vehicles such as dirt bikes and 4x4 trucks. This table summarizes the group-level views of various activities in Hoosier National Forest. The categories having more than five individuals (about 5% of the sample) are represented here.

- ++ denotes positive to strongly positive view
- + denotes neutral to positive view
- denotes neutral to negative view
- denotes negative to strongly negative view

Many of the recreational users go to Hoosier National Forest for very similar reasons; their ways of enjoying the forest simply differ (Slover 1996). There are a number of recreational uses of Hoosier National Forest. Some prefer horseback riding, others hiking, and still others prefer hunting. Mountain biking is a relatively new recreational pursuit that is gaining popularity in Hoosier National Forest.

Because many hikers perceive hiking as having a low impact on the Forest, they consider that to be the best activity in which one can participate while enjoying HNF. Although some hikers have been satisfied with the management of the Hoosier, others are critical. Hikers' perceptions are related to experiences they have had while spending time in the forest. Run-ins and disagreements with different users on the trails have markedly changed the perception of some users and contributed to polarization of groups. Many hikers feel the need for more "hiker only" trails in order to enjoy the forest without disruptions from other users.

Tradition plays a large role in the respondents' perceptions of the use of the forest. Hunters have traditionally used Hoosier National Forest and have an interest in the management practices. Turkey and especially grouse hunters consider recent forest openings made by clear-cuts and other maintained openings as prime locations for their activities. Some deer hunters prefer management practices that provide better vehicle access in order to transport their trophies. With the increase of other recreational activities, and pressures from other sources, hunters perceived a decrease in the suitability of hunting in HNF and expressed concern over the loss of areas in which they can recreate.

Although the Forest Service prohibited ORV use within Hoosier National Forest in the mid-1970s, some of the interviewees noted the use of ORVs is still a contentious issue. ORV users have organized themselves into national- and local-level groups in order to lobby for a voice in management of Hoosier National Forest. Many respondents expressed concern that the hilly terrain and fragile soils in HNF make ORV use unsustainable and destructive to the natural habitat. However, some users, even those who view ORV use as an unfavorable activity, recognize the argument that public lands are created from tax payers' money and therefore all residents should have the opportunity to engage in activities of their choice within the forest. Some users stated that they would not be as opposed to ORV use if it were more closely monitored and preformed in areas set aside for this type of activity.

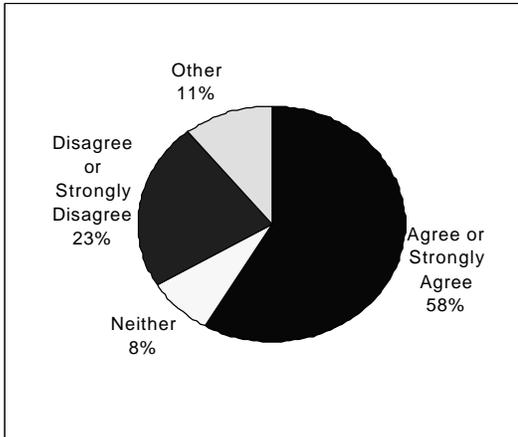
One issue cited by horseback riders concerns the length and variety of trails within Hoosier National Forest that are available for riding. The lack of trails causes riders to become bored, and repeated use of an area causes physical wear on the trail. This makes maintenance of the horse trails difficult, and some of the trails have fallen into disrepair. A particular concern of some users is the use of coarse gravel as a way to maintain the trails. Because the gravel is not good for horseback riding, riders sometimes create their own “bypass” trails around bad gravel areas and, in the process, disturb the natural habitat and increase the susceptibility of areas to erosion. Other users find foreign material, such as gravel, placed on the trails as deleterious to their experience in the forest.

***Question 5: What values do the stakeholders and public hold related to the environment and natural resources?***

Respondents had varying views of the values associated with Hoosier National Forest. Nearly equal numbers of participants agreed or strongly agreed with each of the following ways of conceptualizing the major objectives that could be adopted in managing HNF:

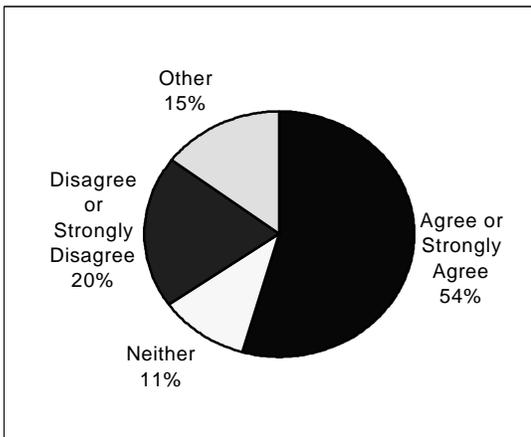
1. Lands need to be preserved in the Hoosier National Forest: to leave them as they are for nature, wildlife, and some recreational uses.
2. Lands need to be conserved in Hoosier National Forest: to have the lands managed sustainably for use and harvesting for the long run.
3. Lands can sustain more usage than they do now. There are too many limits placed on the use and harvesting in Hoosier National Forest right now.

Since each of these strategies is held by approximately one-third of the participants we interviewed, there is no clear consensus on an overall view of the most appropriate values to be sought by the Hoosier National Forest management. This set of questions came during the written portion of the interview and consequently about 10–15 percent of the respondents did not answer these questions due to a misinterpretation of the question or failure to complete the entire form.



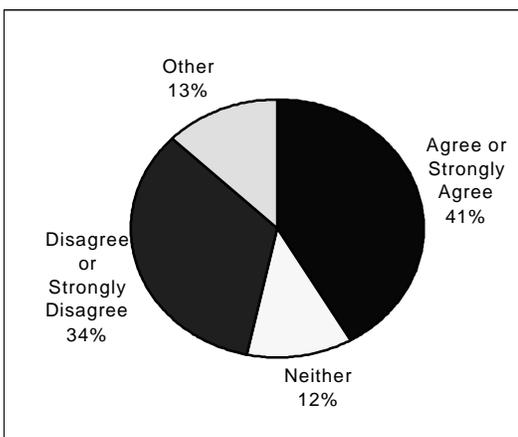
Lands need to be preserved in the Hoosier National Forest: to leave them as they are for nature, wildlife and some recreational uses.

**Figure 8. Participants' Views of Preservation**



Lands need to be conserved in Hoosier National Forest: to have the lands managed sustainably for use and harvesting for the long run.

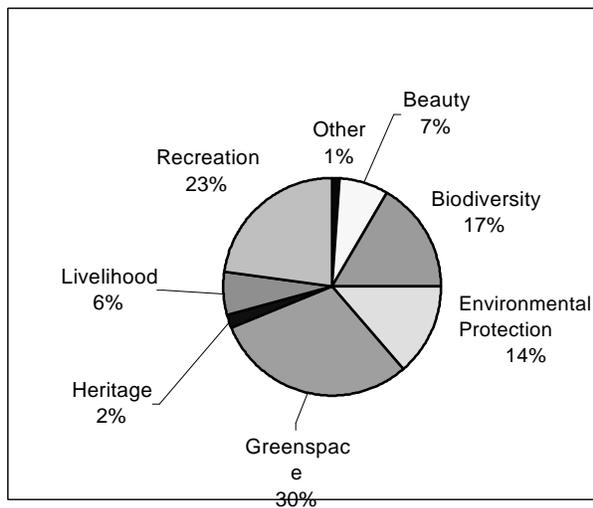
**Figure 9. Participants' Views of Conservation**



Lands can sustain more usage than they do now. There are too many limits placed on the use and harvesting in Hoosier National Forest right now.

**Figure 10. Participants' Views of Increased Usage**

Such heterogeneity is also reflected in views of HNF. Respondents answered questions regarding the importance of the following values they held in regards to HNF: beauty, biodiversity, environmental protection, greenspace, heritage, livelihood, and recreation. Of the seven values, 14 to 30 percent of the participants cited four values as most important to them in relation to HNF: greenspace, recreation, biodiversity, and environmental protection. This heterogeneity of views clearly complicates management of Hoosier National Forest. These four values place a heavy emphasis on conservation and preservation of the forest resource, but do not provide a clear direction or goal for managing HNF (see Figure 11).



This figure shows the percentage of the participants who ranked each value first in importance. The top-ranked four values (greenspace, recreation, biodiversity, and environmental protection) represent amenity values, public-use values, ecological values, and ecosystem services values.

**Figure 11. Participant’s Values of Hoosier National Forest**

***Question 6: What is the nature of the relationship between the community, the forest, and the ecosystem?***

As part of the interviews discussed previously, we asked the respondents to identify communities and areas of use in and near Hoosier National Forest. Respondents drew communities, areas of use, and areas of conflict on a plastic overlay on a map of southern Indiana. This portion of the interview produced more than 100 maps from the participants’ drawings on the plastic overlays. These drawings represented the mental maps of participants’ perceptions of the communities, uses, and possible disagreements surrounding HNF. This section provides an analysis and interpretation of the maps generated during the in-person interviews.

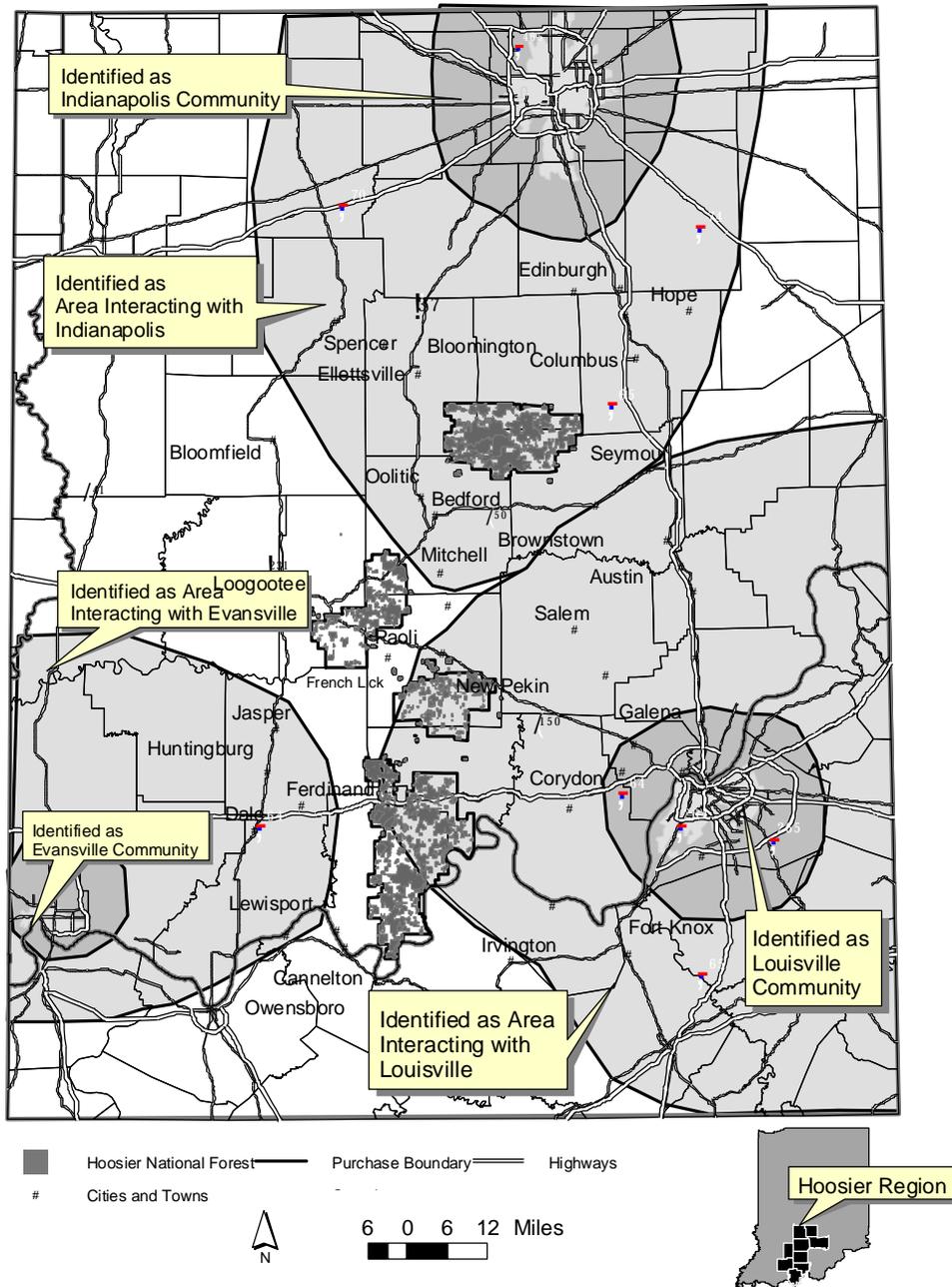
Our analysis of these maps reveals three major views of communities and subregions within the HNF region. The first type of community highlights the influence of nearby urban centers on the mostly rural area in and near Hoosier National Forest. A second type of community is based on identification of socioeconomically and culturally similar areas in the region. Such communities were usually coincident with counties, towns, and clusters of towns within south-central Indiana. A third way participants defined areas on the map was based on Hoosier National Forest itself. A number of the respondents recognized the hilly area in which Hoosier National Forest is located as distinct from the flatter areas around it, a more common response was to note finer distinctions of communities based on their uses of particular parts or subregions of the forest.

These perceptions of the relationship between Hoosier National Forest and the larger cities were the basis upon which some people defined communities. Respondents reasoned that people who live within the service area or hinterland of each large city have a similar mentality in relation to the forest and natural resources. The suburban areas in many of the participants' minds are part of the city, culturally and socially. However, some residents of the Indianapolis area distinguished the suburbs as distinct from the urban areas because of economic and social differences.

### ***Cities and Their Areas of Influence***

Hoosier National Forest is in the center of a triangle of large urban areas. It has three major population centers to its north, southeast, and southwest: Indianapolis (and Bloomington), Louisville, and Evansville respectively. Each center has commercial, economic, and social impacts on Hoosier National Forest, and the forest has an impact on these centers. Respondents indicated a flow of people from the cities into the Hoosier and surrounding areas. Both city residents and rural residents shared this view in the interviews.

This view of the relationship between the larger urban areas and HNF is distinct in that it views the central, rural area of HNF, which is centered in a triangle of urban areas, as being "invaded" by people from the population centers who travel to the forest on weekends and holidays for various recreational pursuits. In a related, but somewhat different view, respondents perceived more of a two-way flow of between the cities and the area in and near HNF. In this view, cities were interpreted as commuting or regional centers for south-central Indiana. The polygons in Figure 12 represent not only the extent of the area into which ideas, materials, and people flow from the cities, but also the extent of the hinterland from which materials (mostly timber and coal) and people (mostly commuters) flow into the cities, which are perceived as service centers (see lighter shaded polygons in Figure 12).



**Figure 12. Communities Related to Hoosier National Forest by Their Connections to a Large Urban Area**

**Urban Areas** Hoosier National Forest is in the center of a triangle formed by large urban areas. It has three major population centers to its north, southeast, and southwest: Indianapolis, Louisville, and Evansville, respectively. Each center generates commercial, economic, and social impacts on Hoosier National Forest. These cities were commonly identified as “communities” affecting Hoosier National Forest.

**Dark Gray Areas** Respondents indicated a flow (of mainly people) from the cities into HNF and surrounding areas. Both city residents and rural residents shared this view. The areas with darker gray shading on the map represent agglomerations that include most of the areas identified in the respondents’ maps as the large urban centers of Indianapolis, Louisville, and Evansville.

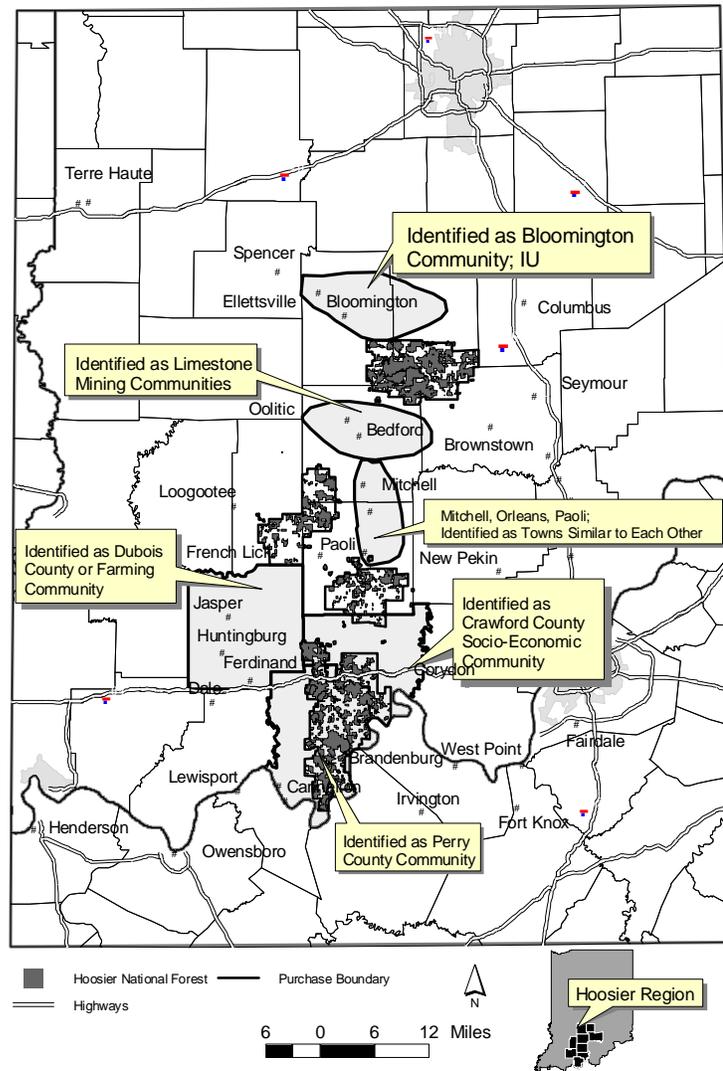
**Light Gray Areas** The lighter gray shading represents areas identified by interviewees as areas that were not part of the actual urban center but were connected or served by the urban center.

The influence of the urban areas is important not only for its demographic and economic impacts, but also because of the wider range of views of resources and resource management that accompany urbanization. Differences in the views of the communities can be attributed to some extent to the difference between “country” and “city” residents. Long-time rural residents of an area tend to have views and values toward the forest and communities that differ from visitors’ views and values. Several participants identified differences between the atmospheres of the country and the city, and many of them pointed to a way of life in the rural areas that is different from life in the more populated areas.

### *Areas Defined by Counties and Towns*

Because much of the area in and near Hoosier National Forest is predominately rural, the administrative unit of government that most people are familiar with is the county. Often the county boundaries match socioeconomic and cultural regions and management unit divisions within HNF, resulting in the natural and financial resources of the counties being tied to the forest. The importance of the counties’ resources helps explain why many of the participants defined communities in terms of the boundaries of the counties in south-central Indiana.

Although a few interviewees identified communities based just on county boundaries, most combined county boundaries with consideration of socioeconomic characteristics. For example, some areas that happened to correspond with counties were identified by their dependence on farming while others were identified by their dependence on forest-related industries. The definition of county as community holds true particularly in the extreme southern area in the study region: Perry, Crawford, and Dubois counties. As one moves further north, beginning, for example, in Orange and Lawrence counties, few people identified counties as communities and focused instead on the socioeconomic characteristics and areas influenced by towns (see Figure 13).



**Figure 13. Communities Related to Hoosier National Forest by Socioeconomic and Cultural Considerations**

**Counties:** Many of the participants identified counties as distinct communities in the Hoosier Region due to similarities in socioeconomic and cultural characteristics. The county also provides infrastructure and services for many residents of the rural areas near Hoosier National Forest. The importance of the county as a community appears to be especially true in Perry, Crawford, and Dubois counties.

**Towns:** The definition of county as community holds true particularly in the extreme southern area in the study region: Perry, Crawford, and Dubois counties. As one moves further north, beginning, for example, in Orange and Lawrence counties, few people identified counties as communities and focused instead on the socioeconomic characteristics and areas influenced by towns.

### Three Counties: Perry, Crawford, and Dubois

Perry and Crawford counties share many similarities in terms of the proportion of Hoosier National Forest land within them and topography. They also have interesting distinguishing characteristics that the interviews revealed. Within Perry and Crawford counties, residents viewed a trend of people moving in from urban centers. In the case of Crawford County, this development is because of individuals seeking lower prices for land in order to commute to Louisville. In contrast, Perry County has people from urban areas that buy vacation and retirement homes near the Ohio River and in other scenic places. Perry County is becoming known as the “cheap Brown County” of southern Indiana. Another issue where these two counties share similarities with important differences is county property taxes. Residents from both counties viewed the federal government’s holdings in their county as a detriment to the ability of the counties to raise revenues through property taxes. Within Crawford County the general feeling is that public lands represent a barrier to economic growth. Residents from Perry County, on the other hand, have a more split view on this issue. Some residents see potential benefit in the fact that a relatively large proportion of its land is under federal ownership. This is a factor that draws people to build vacation and retirement homes. Within Crawford County, the dynamic is different because the factor drawing people to the county is not its natural features entirely, but inexpensive land for commuting families.

Respondents consistently named Dubois County as having a strong German heritage known for a strong sense of community and a robust economy based on an industry of wood processing and products as well as fertile farmland. The relationship for raw materials once was tied to the Hoosier National Forest and the forested land in south-central Indiana, but more recently the industry has been relying on wood from outside of the state to supplement the hardwoods they obtain from Indiana. Consequently, respondents viewed the linkage with the forest as one based on recreation. Hoosier National Forest is perceived as the “playground for Dubois County.”

### Towns and Groups of Towns

For areas north of Perry and Crawford counties, interviewees tended to identify communities based on towns rather than counties. Generally, respondents grouped towns

together because of the predominant economic activity of the communities. One grouping of towns was Paoli, Orleans, and Mitchell. Respondents indicated that they had similar industries and similar economic status. Other towns, such as Bedford and Oolitic, were identified as one community because of the economic and historical importance of limestone mining (see Figure 13). The French Lick area was differentiated due to its dependence on tourism. Respondents also depicted towns in the flatter areas of southern Indiana, including Greencastle, Cloverdale, and Martinsville, or Salem and New Pekin (to the north and west of HNF) in a similar way because farming is the dominant economic activity in this area.

One of the most commonly identified communities was the greater Bloomington area. Individuals from all over the region noted this community as distinct within south-central Indiana. It is interesting to note that some respondents named this area Indiana University rather than Bloomington due to the university's dominance in regional identity and culture. The polygon in approximately the middle of Figure 13 represents the area most commonly identified as Bloomington. However, areas included in Bloomington or Indiana University varied. Generally people included the town of Ellettsville, areas along State Route 46 into Brown County, and areas south along Highway 37 as being part of Bloomington. These areas are strongly linked to Bloomington, and residents are, therefore, economically, socially, and culturally different from those who live in more rural areas.

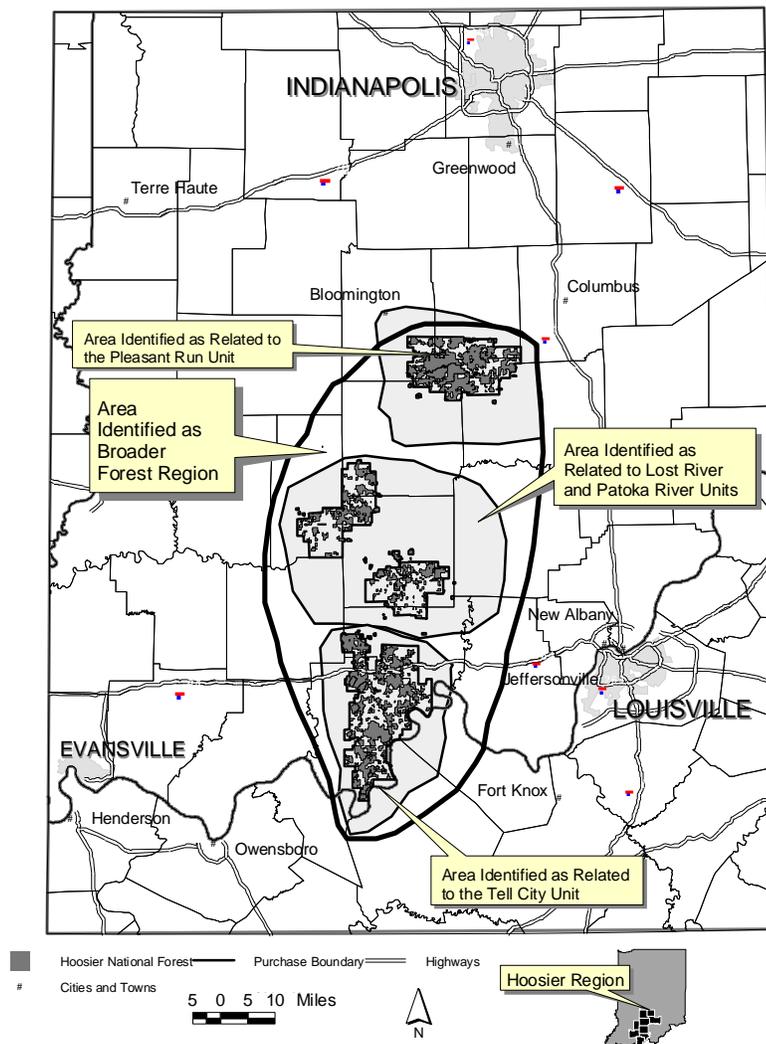
Although the Bloomington area is somewhat dependent on Hoosier National Forest for recreation-based industry, many people in the area near Bloomington have a view of HNF similar to those in larger urban areas, such as Indianapolis. Some participants perceived much of the Bloomington population as working in Indianapolis. People in Bloomington tend to be more actively involved in environmental groups, and environment-dominated viewpoints tend to be more prevalent in this community. Some of the participants saw the two cities, Bloomington and Indianapolis, as places where the management decisions for Hoosier National Forest are made.

### **The Hoosier Region and National Forest Management Units**

Many participants in the study looked at south-central Indiana, especially the Hoosier Region, as a single community that encompassed the entire Hoosier National Forest and the areas surrounding it. HNF has four separate management units: from north to south,

they are Pleasant Run, Lost River, Patoka River, and Tell City. Many respondents designated an area encompassing all four management units as one distinct community due to their similar physiographic and biophysical features (see Figure 14). This eggplant-shaped area represents much of the portion of Indiana with limestone and sandstone features underlying the forested hills and hollows that were not glaciated in the two most recent glaciation events. This “hill country” community was defined based primarily on the biophysical features of this area. Participants indicated that most other areas in Indiana are flat farming communities, noting that this region is different with its trees and beautiful, rolling countryside. Individuals saw the physical characteristics of the land as the unifying force for these communities. They focused on the forest rather than the relatively artificial boundaries of towns, cities or counties. The shared experience of the natural surroundings created the communities.

Others who focused on Hoosier National Forest to define communities saw differences between the management units. Over ten individuals distinguished the Pleasant Run Unit as different from the rest of the forest because of the conflict over the recreational activities in that area. Its distinctive characteristics (the largest contiguous area of forest designated and its proximity to Indianapolis and Bloomington) have contributed to individuals' distinguishing this portion of the forest. This conception diverts from the focus on the biophysical characteristics of the Hoosier Region and describes a particular area of intense recreational use of HNF rather than any specific group of people living in one area. It describes where the users from Indianapolis and Bloomington tend to visit.



**Figure 14. Communities Related to Hoosier National Forest Based on Use of Management Units**

**Hill Region:** Many participants in the study looked at south-central Indiana, especially the Hoosier Region, as a single community that encompassed the forested hills and valleys of Hoosier National Forest and the other unglaciated areas surrounding it. HNF has four separate management units: from north to south, they are Pleasant Run, Lost River, Patoka River, and Tell City. Many respondents designated an area encompassing all four management units as one distinct community due to their similar physiographic and biophysical features.

**Deam Area as Separate** In this view, the Pleasant Run unit was identified as distinct from the southern three management units because respondents perceived that this area has very high usage and contestation over its management. This was also the area used most frequently by residents of Bloomington and the areas surrounding the unit and includes towns and businesses most dependent on recreational activities associated with this area.

**Each Management Unit as Separate** This views divides the region into three parts based on the management units. The Pleasant Run management unit remained distinct for reasons similar to those given above, but respondents also separated the middle two management units, Lost River and Patoka River, from the Tell City Unit. They were distinguished based on the degree of use and dependence between the units and nearby areas.

Another view includes social differences of the areas surrounding the various management units. One respondent grouped the areas including and surrounding the Lost River and Patoka River units as one due to the highly fragmented federal ownership. One of the reasons for this ownership pattern was the reluctance by community members to sell land to the Forest Service. Indeed, individuals living in this general area cited a negative attitude or mistrust toward governmental entities. This mistrust may have contributed to a reluctance to sell property to the Forest Service. An attitude that one “has to own land or he is nothing” exists in parts of this area as well. The Tell City Unit and areas around it were noted as being where individuals focused on the resources resided. Individuals living in Perry and parts of Crawford counties portrayed this attitude. Persons from this area mentioned the importance of the forest resources for future generations and the fact that residents have been using various resources from the forest for generations and is therefore important to them as people from this community.

### **Summary of the Relationships among the Communities, the Forest, and Ecosystem**

The results of how the respondents of this study view communities mirror how they view the uses and management of Hoosier National Forest. There is a rich diversity of perceptions and feelings regarding how the social and biophysical landscape is structured and how the inhabitants interact with the natural environment. This report reveals the trends of how the key informants conceptualize the communities and the relationships that citizens have with HNF.

Three major patterns exist, each taking a different tack on what features and concepts are important concerning the relationship of the communities with HNF. The development of how and where the communities interact is a very significant finding. A broad trend in the perception of the communities involves how the urban areas affect the rural areas and how the rural areas turn toward or away from the urban areas. There is a definite feeling of country and city in south-central Indiana and how these two cultures relate to each other. Respondents had different views of the influence of urban areas on HNF, and this is a manifestation of the different views of the communities in and near the forest. Respondents generally defined rural areas as different from one another and not necessarily having much of an impact on each other. Companies processing lumber in Dubois County take some of its

raw materials from the neighboring areas, but a more significant portion originates from other states. Crawford and Perry counties lie next to each other, but the more significant impacts on these rural areas derive from the larger urban areas.

The country-versus-city perception is especially prevalent in the determination of south-central Indiana (the areas in the four management units) as a single community. In terms of how the communities are changing, some respondents alluded to the movement of urban residents into the easily accessible areas of the country, as well as pockets of retirement and vacation homes in places like Perry County.

Many respondents noted differences between urban and rural areas around Hoosier National Forest. Factors related to the degree of urbanization such as population density, income, and economic activities vary greatly across the region in and near HNF. Many respondents recognized this variation when identifying communities. For example, they separated the urban centers of Indianapolis, Louisville, and, to a lesser extent, Evansville from the more locally dominant centers, such as Bloomington or Tell City, and from the rural areas. Many noted differences in views and uses between those who come into Hoosier National Forest from the urban centers and those who live within or very near the forest.

The results of the map exercises reflect information given in response to other questions asked during the interviews. For example, respondents indicated that in communities subjected to substantial and rapid population growth, such as Monroe County, there is greater contestation over access and use of Hoosier National Forest and greater diversity in the value of the forest than in other communities.

- The map indicating the areas of influence of the urban areas could indicate where the potential areas of concern are if there are issues affecting a particular portion of the forest
- Understanding the characteristics of particular counties and towns that the respondents defined as communities will allow the managers to better know the socioeconomic context and therefore better predict potential impacts of management decisions on particular areas
- Characterizing the areas around the management units can help managers to visualize areas of conflict, use, and general attitudes about the Forest Service and the forest.

***Questions 7 and 8: What are the stakeholder and public perceptions related to ecosystem management issues? What conflicts exist between the users and the managers?***

In this section, we discuss the most common issues raised by the respondents related to management of Hoosier National Forest. Perception of the quality of the management provided by the U.S. Forest Service spanned a broad range of perspectives. In the interview we asked both structured and open-ended questions to gain the most important views and opinions regarding management.

Responses to these questions reveal that respondents are concerned about the fragmentation of ownership, management, and habitat within the Hoosier National Forest management units. Another key issue was loss of biodiversity. Others saw the decrease or elimination of some services as a major issue facing Hoosier National Forest management. Many respondents called for increases in rule enforcement, trail maintenance, and outreach services. Another important issue noted was the polarization of interest groups over management issues such as logging, recreational usage, and trail allocation. A major concern over these conflicts was the fear that the health and integrity of HNF would decrease, because the interest groups could not agree on any one management direction. Some participants have grown frustrated with the complexity of the decision-making process established for the management of Hoosier National Forest. Responses reveal that stakeholders differ in their views of who can best decide the management direction for the forest. Some interviewees would like greater input from academics and the public in management decisions. Many indicated that the Forest Service manages the forest to the best of their abilities. These abilities are, however, constrained by higher-level managers and lack of proper funding. Issues such as these present further challenges for the management of Hoosier National Forest.

Many broad management issues arose during the interviews, and we have separated them into two major categories. The first category relates to the work Forest Service officials are doing. Many respondents noted that the individuals working in HNF are good people with high professional standards who face difficult challenges related to the issues of management of the forest. Others expressed a lack of trust in the Forest Service based on the outcomes from past interactions.

- **Fiscal limitations** Participants have noted that Hoosier National Forest is a “forgotten stepchild” compared with other national forests in the West. These limitations are manifested in poor conditions on certain trails, the lack of facilities at some access points, and a lack of enforcement of rules and regulations, especially at campsites.
- **General performance** Many noted that federal officials have a high standard of professionalism and they lauded the dealings they have had with them. In light of the financial considerations, others have noted that the Forest Service is putting forth an admirable effort. Still others have concerns and mentioned that past arrogance has set back current efforts.
- **Trust:** Activities in the past as well as some fairly recent dealings have decreased the level of trust some stakeholders have with the Forest Service. Sometimes stakeholder expectations of management practices do not match the outcome of those practices. For example, several informants believed that activities involving the removal of fallen trees from the forest also led to the harvesting of living trees.

The second category relates to who should determine the management direction of the Hoosier National Forest. Many of the respondents thought the management of the forest should be left to “experts.” But identifying who qualified as an “expert” was a contentious issue. Some considered individuals working in the Forest Service to be in the best position to make decisions, while others defined experts as ecologists. Still others felt that decisions affecting the residents should have public input and, with careful consideration of the interests of the stakeholders, HNF personnel could make informed policies that have a positive impact on residents and users of the forest. Some participants noted that to a certain degree the Forest Service has accommodated the interests of the stakeholders. Four major directions surfaced in the interviews: (1) the forest as a renewable resource, (2) recreational usage, (3) ecologically focused management, and (4) traditional/historical views of the forest.

- **Renewable resources** This direction for management focuses on the ability of timber to serve as a renewable resource. Individuals in the timber industry note that the forest needs careful and active management to ensure that it can provide timber products for future generations.
- **Recreation:** A general category for management direction takes a recreational focus. Participants’ views of management emphasized the importance of recreation in HNF and that the activities of the Forest Service should accommodate it.

- **Ecology**: Based on concepts like fragmentation and biodiversity, some respondents look to protect all of the forest, while others emphasize the protection of specific areas as “special areas” that may require some active management, like fire, to enhance the functions of biodiversity and ecosystem.
- **History**: This view focuses on the perspective of locals who have been living and using the forest (linked with the resource view). The ethic in this view is that there is a “bounty of the land” that people can use to support themselves. This view is different from the resource view because it includes activities like root harvesting and hunting as important resources. It also incorporates a mistrust of government officials and a strong belief that local knowledge and practice conflict with current rules and laws and management.

An interesting paradox exists around these four ideas. These management directions are different but not mutually exclusive. Most individuals subscribe to portions of two or more of these ideas. These beliefs regarding what management should do or follow are sources behind many of the specific conflicts over management practices in the Hoosier National Forest. The most commonly mentioned areas of conflict include:

- **ORV Usage**: The Hoosier National Forest currently bans ORV use on its lands, but there is a growing contingent of forest users trying to reinstate this activity. Other groups strongly oppose this practice.
- **Timber Cutting** This is a major source of contention between groups, and more than 70 percent of the participants mentioned this as a conflict concerning the Hoosier National Forest. Some support selective cutting, while others strongly oppose any cutting on federal land. Additionally, some grouse and turkey hunters support clear-cutting to create habitat for game animals.
- **Conflicts between Users** This was partially discussed earlier in this report, where the various user groups expressed their views of the uses of Hoosier National Forest.
- **Development of the Forest** The creation of horsecamps relates to the development of the forest, but this issue can be generalized. Conflict also exists between the Forest Service and the user groups as the latter demand more or improved facilities at access points and within the forest. Some individuals support multi-use trails while others oppose them. Still other individuals are adamantly against further development of the forest to accommodate “industrial recreation” (widening and graveling of paths, more developed campsites, etc.).

## **Conclusions**

Some general patterns have emerged as a result of this research. The most consistently observed result of all aspects of the study was the high degree of diversity of both communities and individuals in the nine-county area around Hoosier National Forest. An analysis of county-level socioeconomic indicators shows a high degree of diversity across the Hoosier Region. Individual-level data complements this county-level information and shows that there is a wide array of values, perceptions, and uses of Hoosier National Forest. This extreme variability adds to the complexity involved in developing management plans for HNF.

This social assessment provides detailed accounts of this diversity, explores the origins of the diversity, and relates its relationship to management issues. The diversity at the community level results in part from historical differences. For example, communities in the southern portion of the study area were founded and shaped by processes different from those in the northern portion. Communities that were traditionally based on agricultural production have cultural characteristics different from those in areas that were traditionally based on timber production or extractive industries. This historical legacy is evident in the current social, economic, and cultural environment of south-central Indiana.

Diversity is also very evident in the responses to the individual interview questions. This research found that examining individual social contexts can contribute to an understanding of differences in views of access, management policies, and uses. This context affects how individuals view different policies that advocate conservation, preservation, or increased usage of Hoosier National Forest. The combination of sociocultural information with stakeholder interviews proved to be an effective tool to identify the broad array of user groups and individuals interested in how Hoosier National Forest will be managed in the future. Developing management plans that address the concerns of all individuals is a difficult task. However, as forest managers try to address the views and values of different stakeholder groups, a social assessment can provide an important context to understand how the public will view different management options.

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