

# Vilas Lakeshore Survey 2005, 2008 and Valuation

Characteristics and Behaviors of  
Shoreline Property Owners

*Kathryn Anderson, Bill Provencher, Dave  
Lewis, Many others*

# Vilas Lakeshore Survey

- Relationship between owners and the lakes they live on.
  - Who are they?
  - What do they do?
  - What do they know?
  - How can we use this info to benefit lakes and the environment?

# Agenda

- The surveys
- The lakes
- Recent population growth and development
- The home-owners
  - Characteristics
  - Knowledge
  - Stewardship activities
- Long-term survey, every 6 years

# Two surveys

- Background
- September 2005
  - focused on shoreline development
- Follow-up in September 2008
  - focused on invasive species and stewardship activities



# Survey Sample

	2005		2008	
Respondents contacted	3,300	7%	2,955	6%
Returned surveys	1,553	47%	1,632	55%

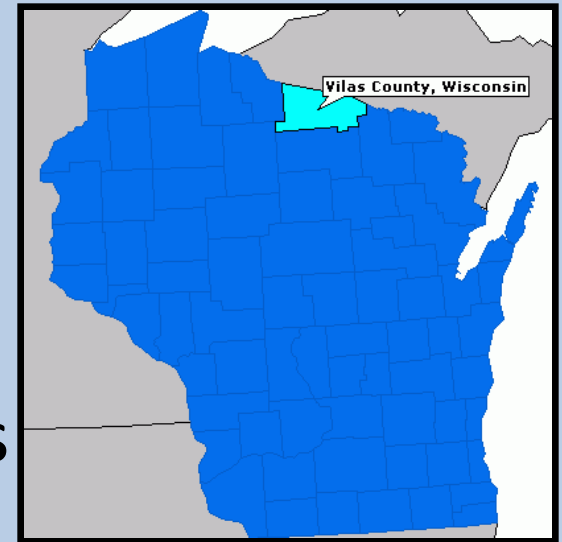
- Chose to respond by mail = 28%
- Chose to respond by Internet = 72%

# Respondents

- Age: 18 to 95, median of 60
- Income: \$10,000 to over \$1 million  
median \$137, 500
- 75% men, 25% women
- 13% inherited, 87% purchased

# Lakes

- 181 in sample
- **AREA** ranged from 7 to 3,816 acres
  - Mean = 563 acres
  - Median = 329 acres (more smaller lakes)
- **DEPTH** range: 4 ft to 117 ft
  - Mean = 40 ft
  - Median = 35 ft (more shallow lakes)
- **WATER CLARITY** ranged from ½ to 6.9 feet of secchi depth
  - Mean = 3.2 ft.



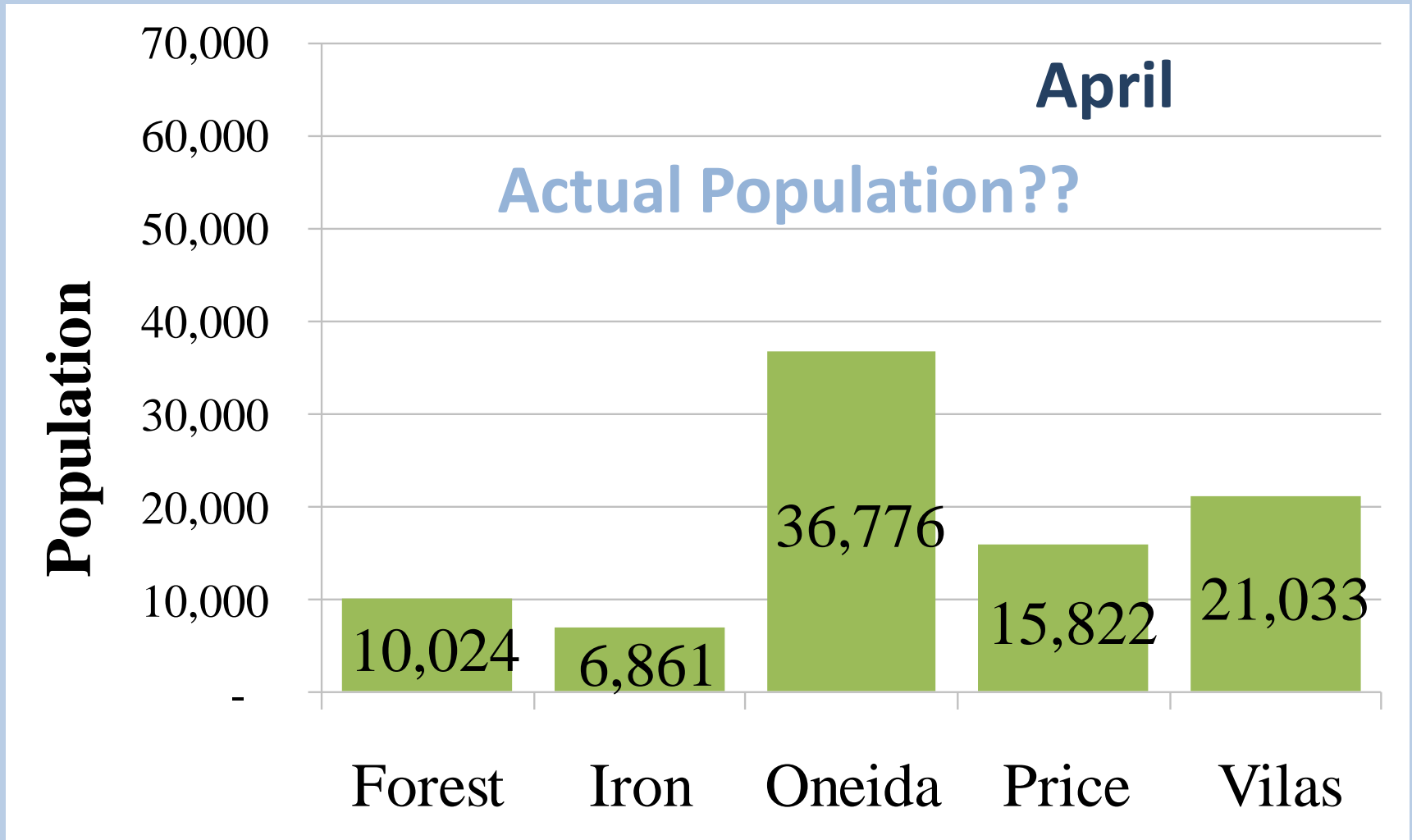
# Lakes

- Highest housing density was 2.2 structures per acre (.46 acres per home)
  - Mean = 2.3 acres per home
  - Median = 2.7 acres per home
- 25% of lakes have a density **less** than **1.8** acres/house
- 25% of lakes have a density **more** than **4.5** acres/house
- 50% of lakes have a density **less** than **2.7** acres/house

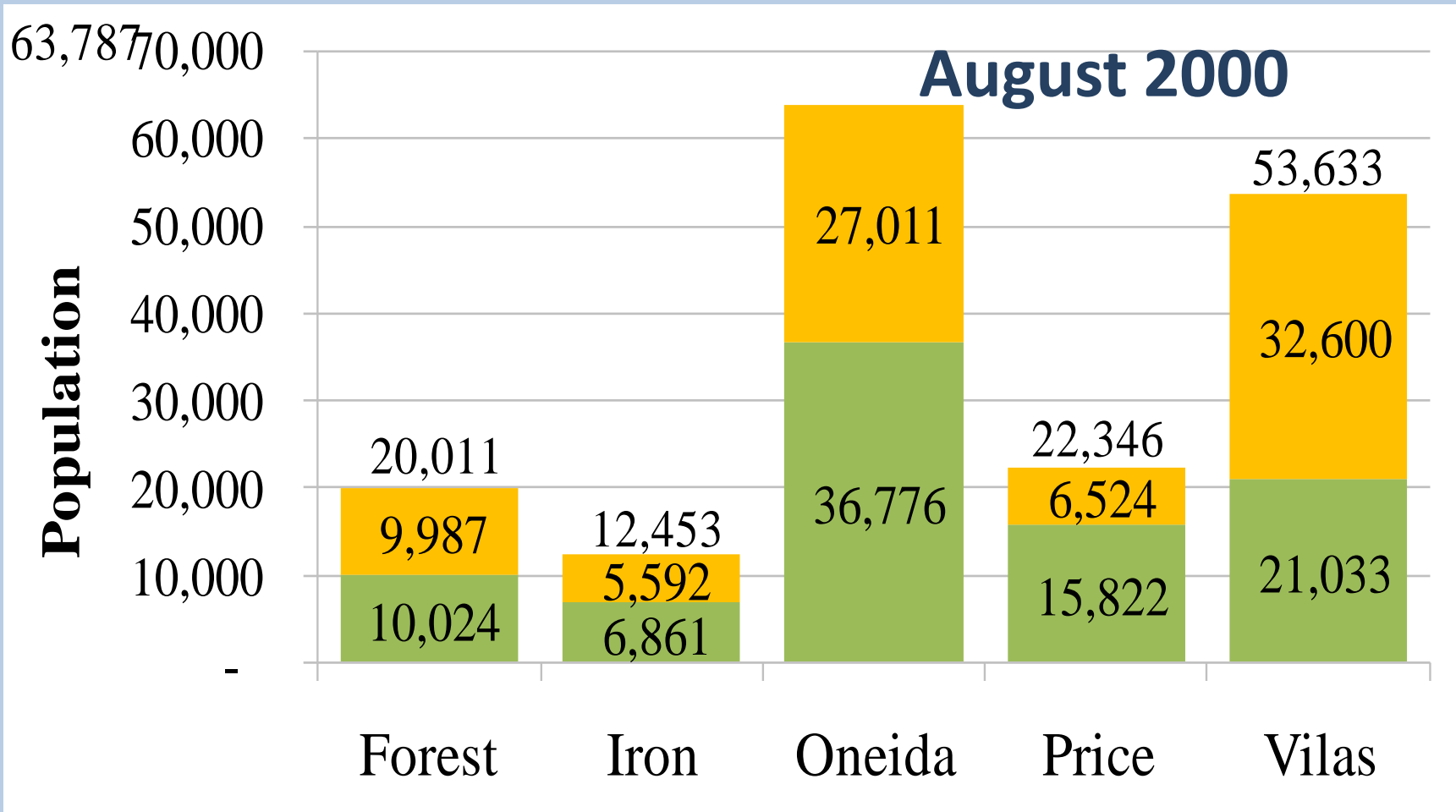
# Public land

- Public land
  - 57% of lakes have none
  - Of the 33% of lake that do have some
    - Mean = 28% of lake
    - Median = 17% of lake
    - Max = 92% of lake

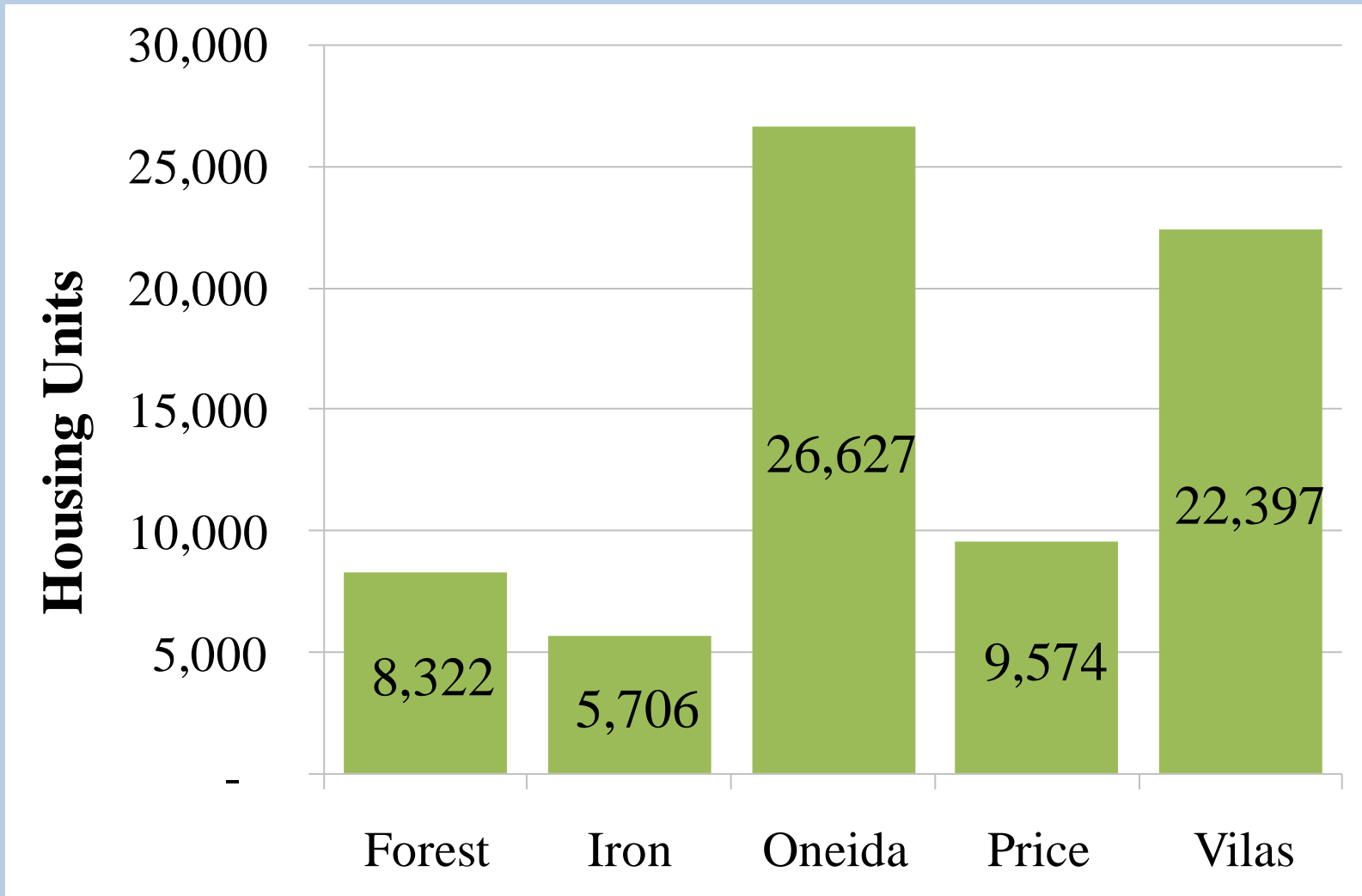
# Census population 2000



# Census population 2000

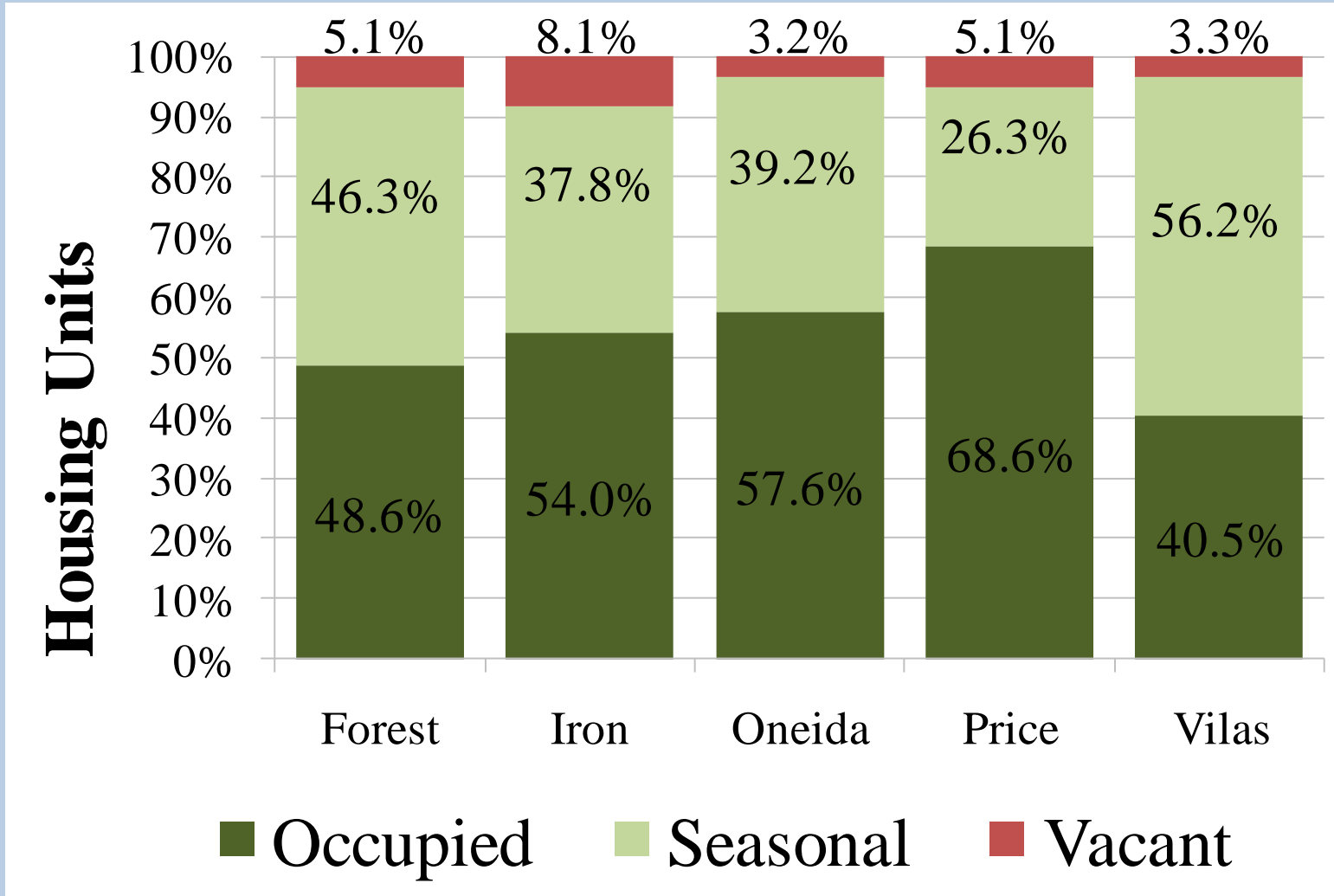


# Housing Units – 2000





# Housing Status -- 2000



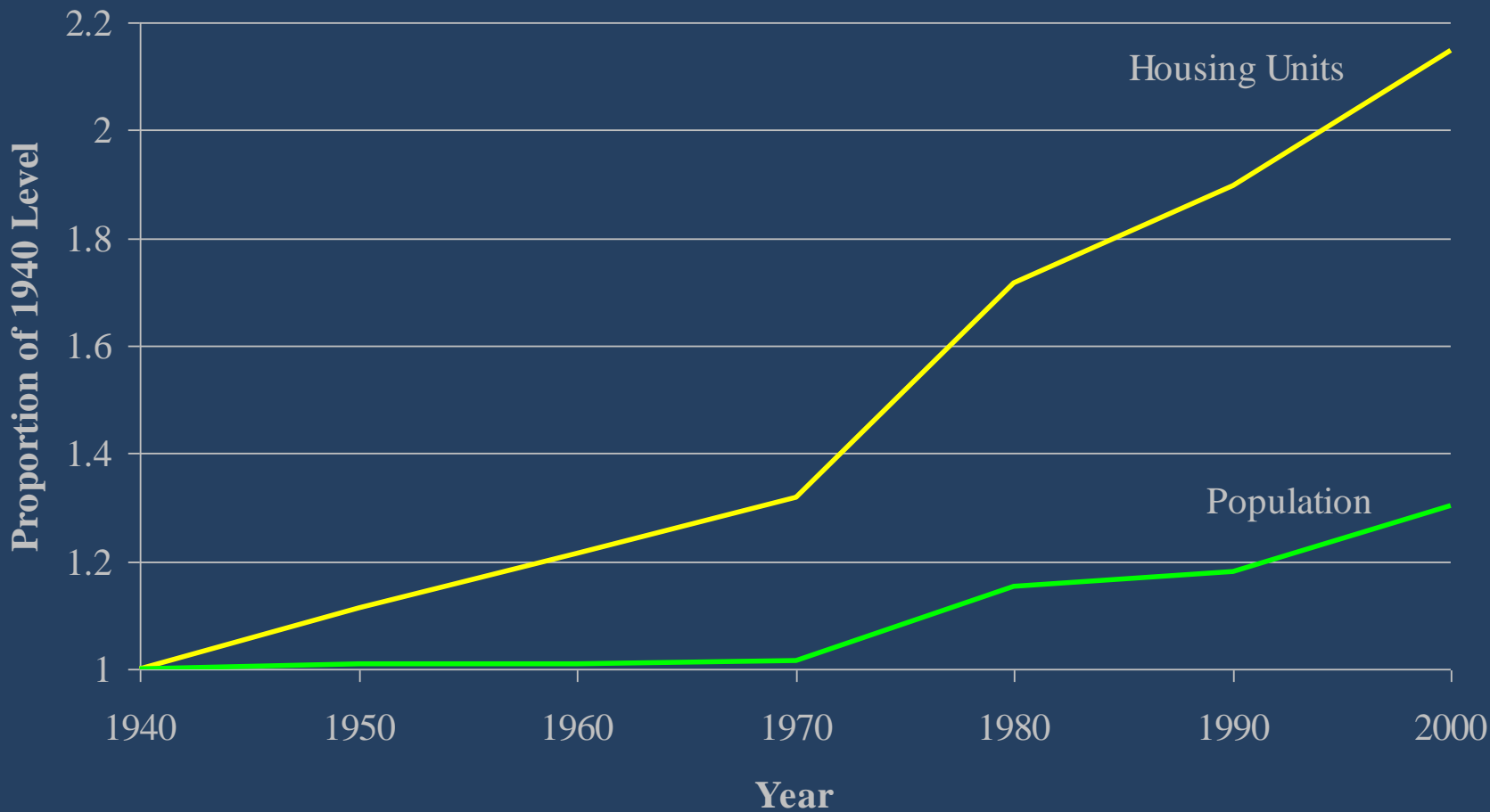
# Seasonality statistics from the survey

- 27% Year-round residents
- 73% Seasonal residents
- Seasonal residents visited for a median of 30 days
  - Range of 0-200 days
  - mean of 39 (reflecting the many retirees and others who live there all summer)

# Concerns of absentee owners

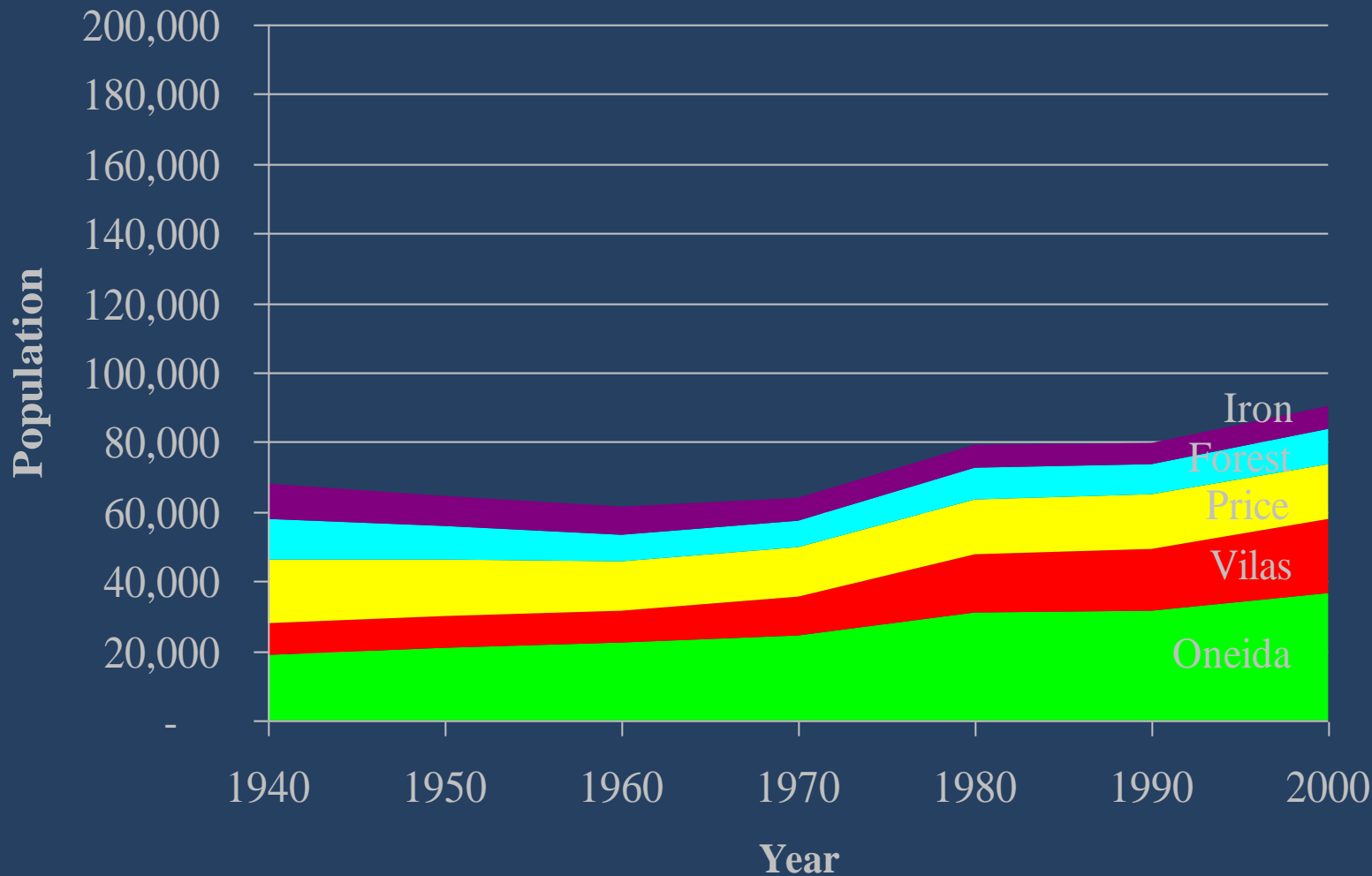
- Taxed on property, but not voting
- Year-round residents control politics
- Those who pay don't vote
- How much do the interests of full-time vs. seasonal overlap?

## **Proportional Growth of Housing Units and Population in the Nonmetropolitan U.S., 1940-2000**



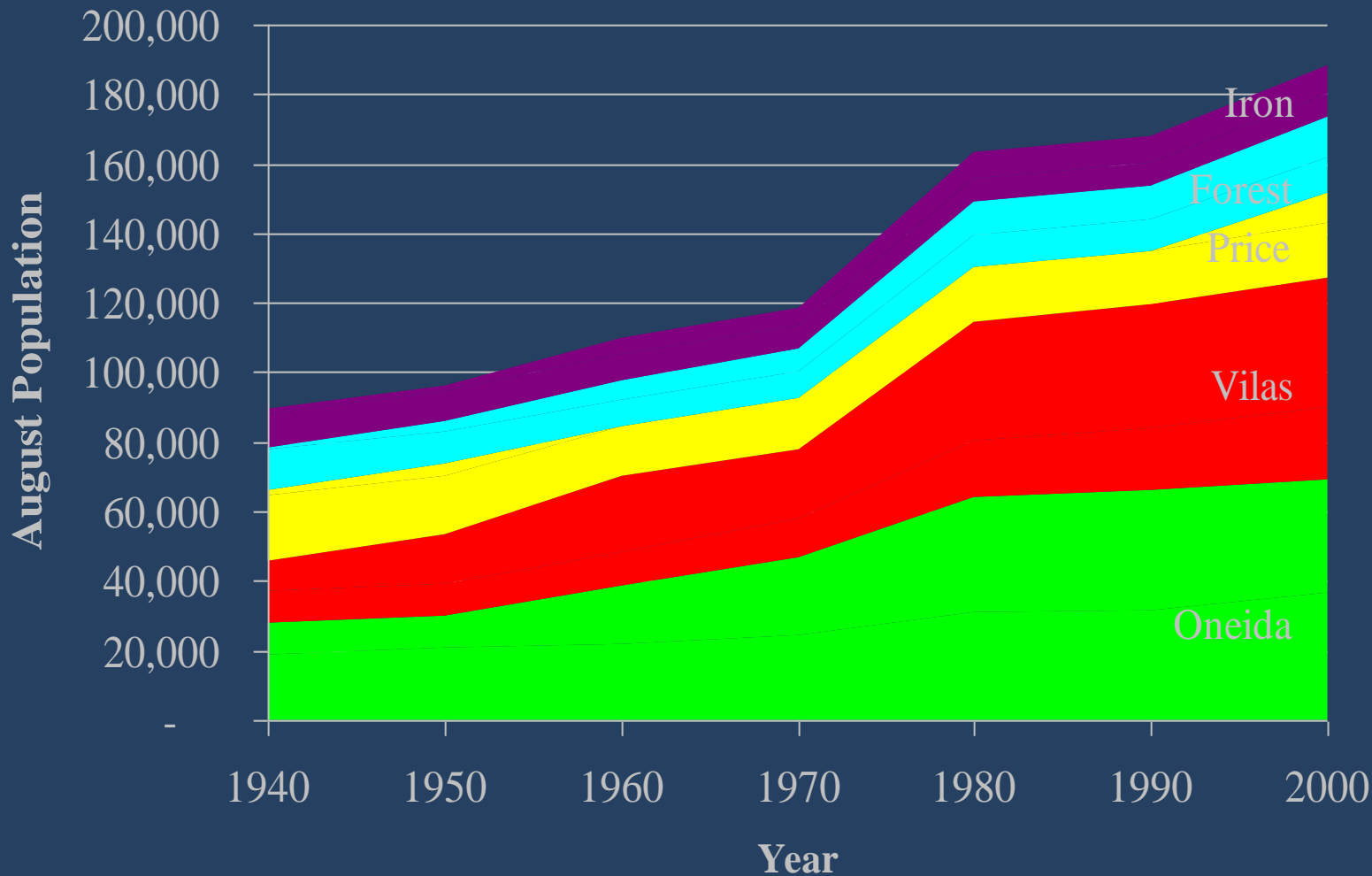
# Population and Housing Growth in the North Woods

## Population of the Northern Highlands Lake District Counties 1940 - 2000



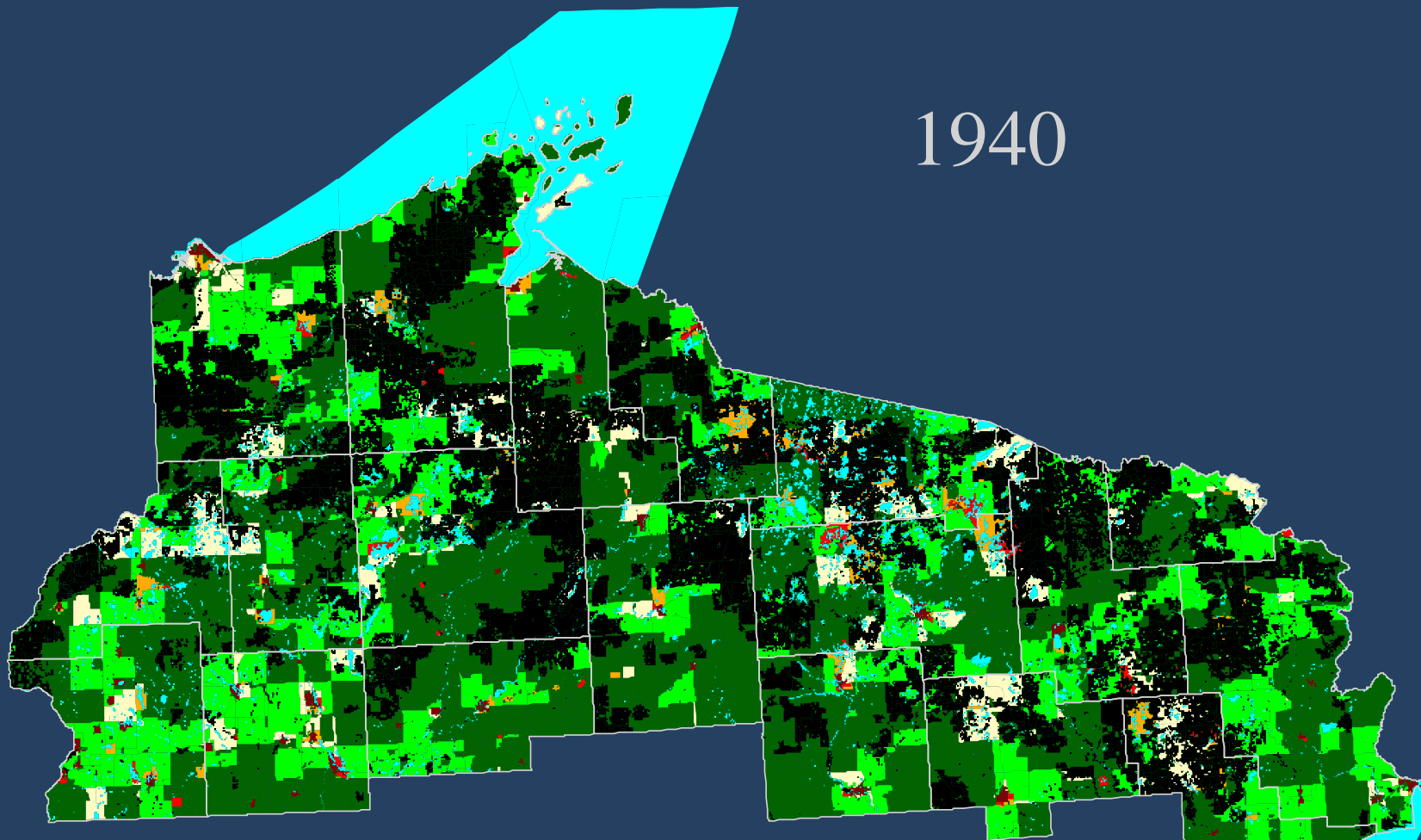
# Population and Housing Growth in the North Woods

## Population of the Northern Highlands Lake District Counties August 1940 – August 2000



# Population and Housing Growth in the North Woods

1940



50 0 50 100 Kilometers



Counties  
Public Land

Housing Units/Sq. Kilometer

0 - 2	8 - 16
2 - 4	16 - 32
4 - 8	> 32

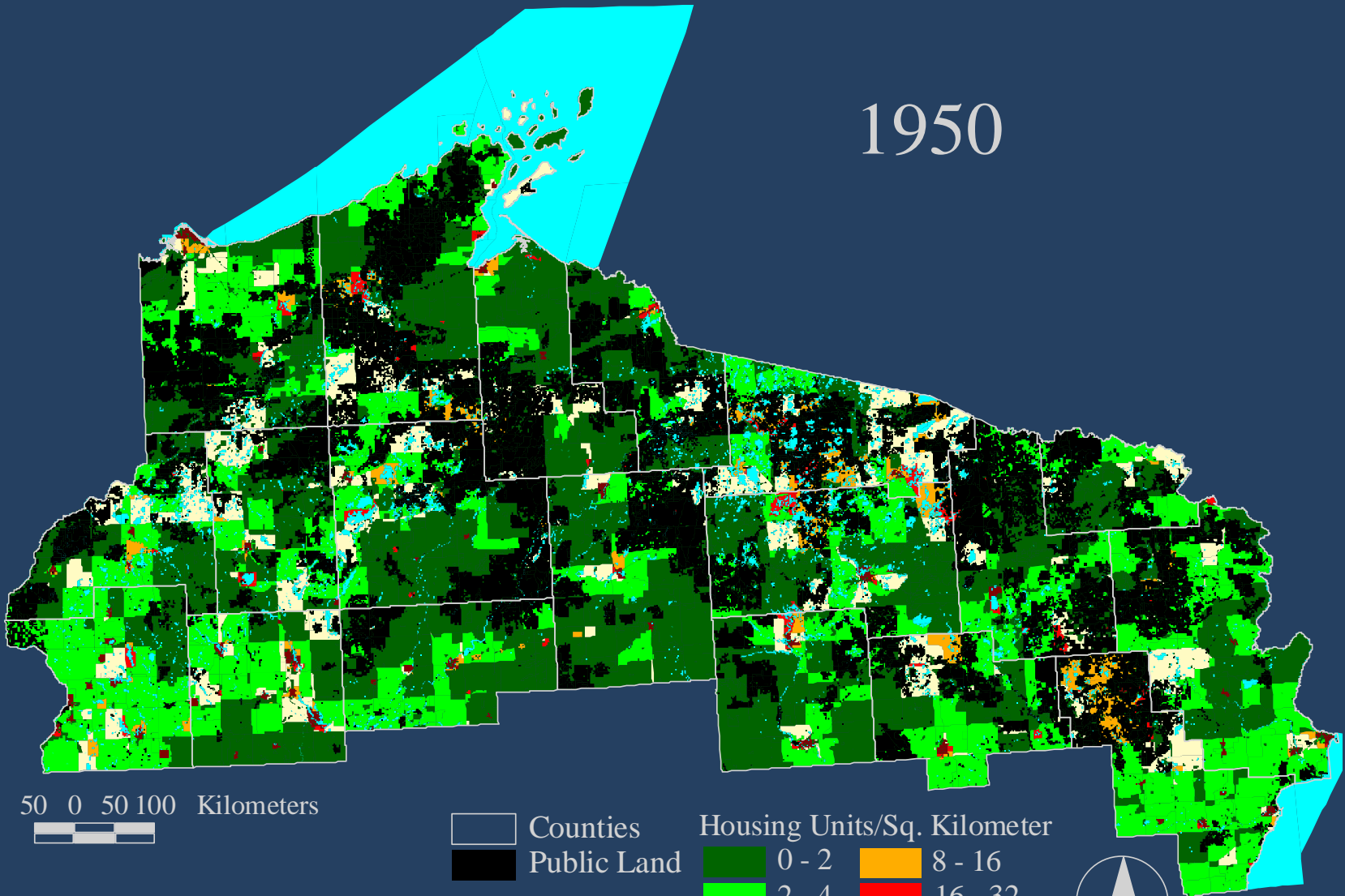
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# Population and Housing Growth in the North Woods

## 1950



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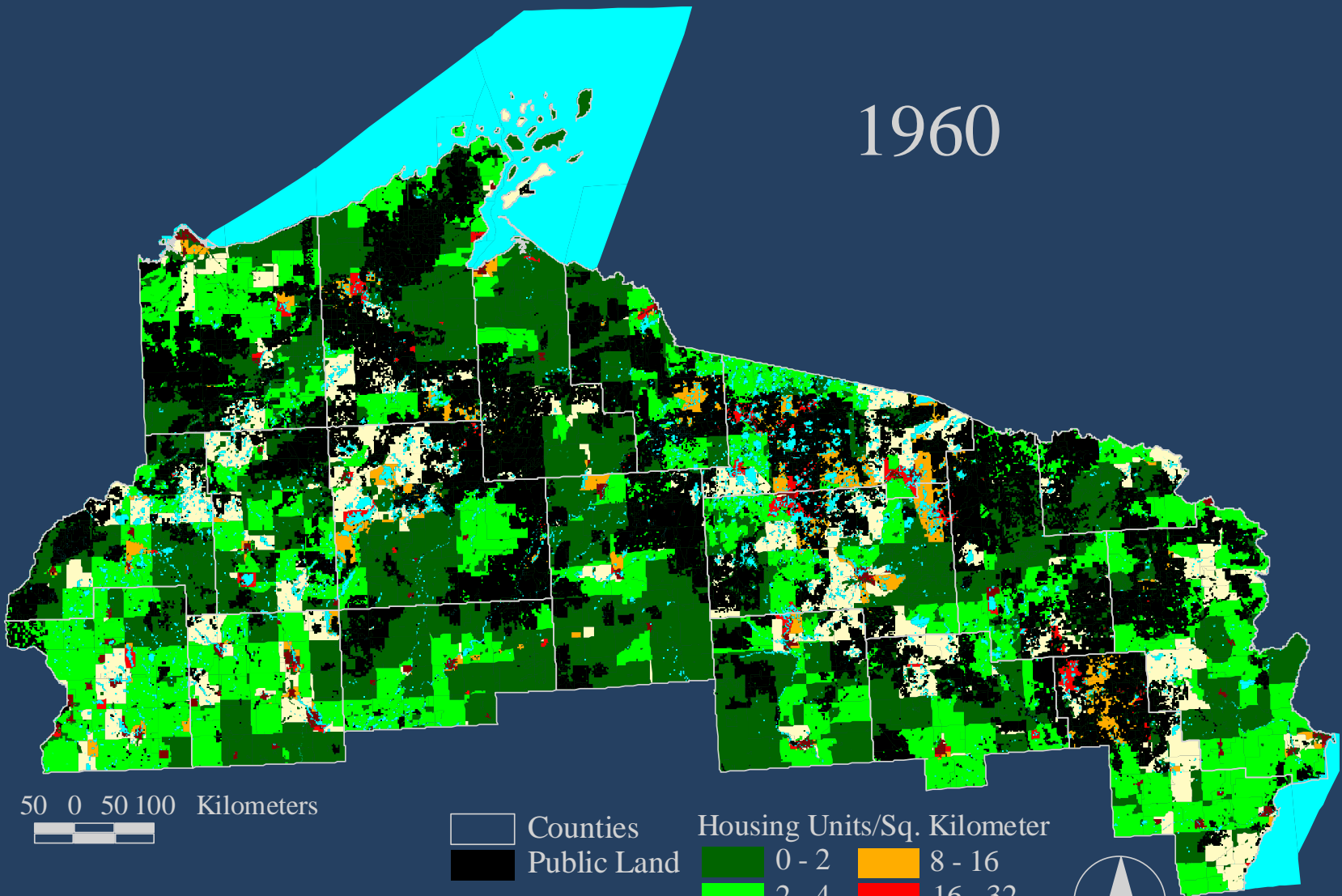


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# Population and Housing Growth in the North Woods

1960

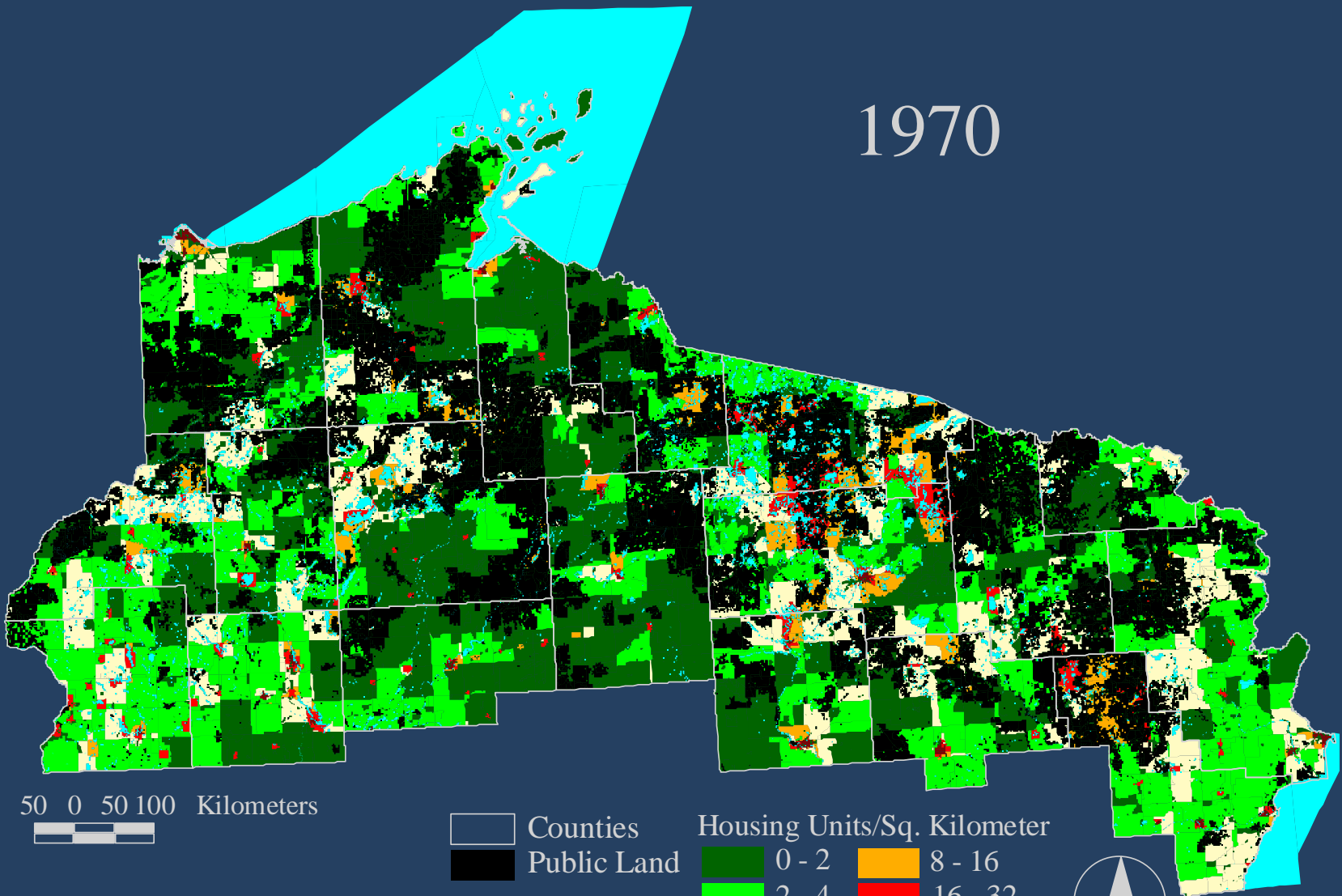


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# Population and Housing Growth in the North Woods

1970



50 0 50 100 Kilometers



Counties  
Public Land

Housing Units/Sq. Kilometer

0 - 2	8 - 16
2 - 4	16 - 32
4 - 8	> 32

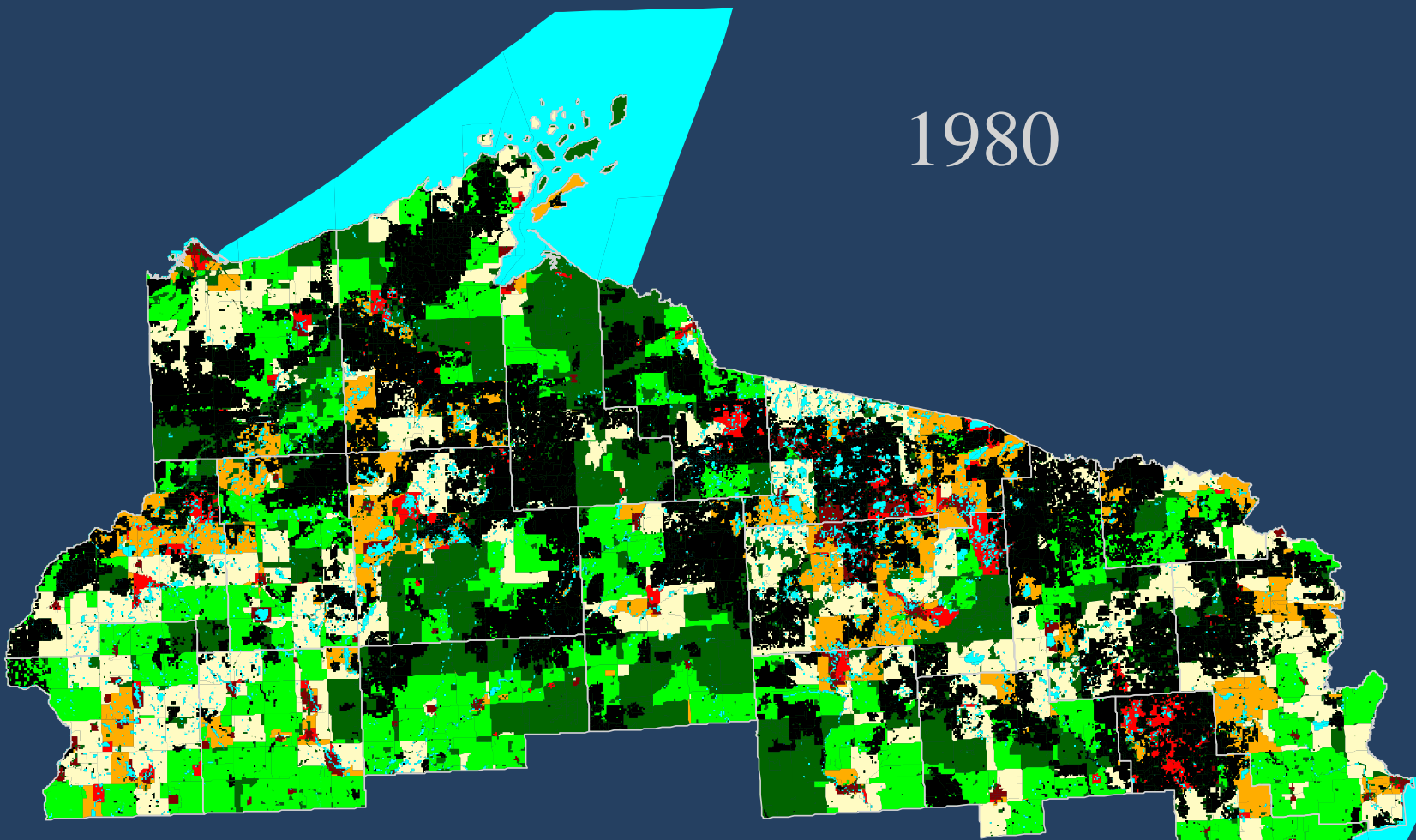


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# Population and Housing Growth in the North Woods

1980



50 0 50 100 Kilometers

Counties  
Public Land

Housing Units/Sq. Kilometer  
0 - 2  
2 - 4  
4 - 8  
8 - 16  
16 - 32  
> 32

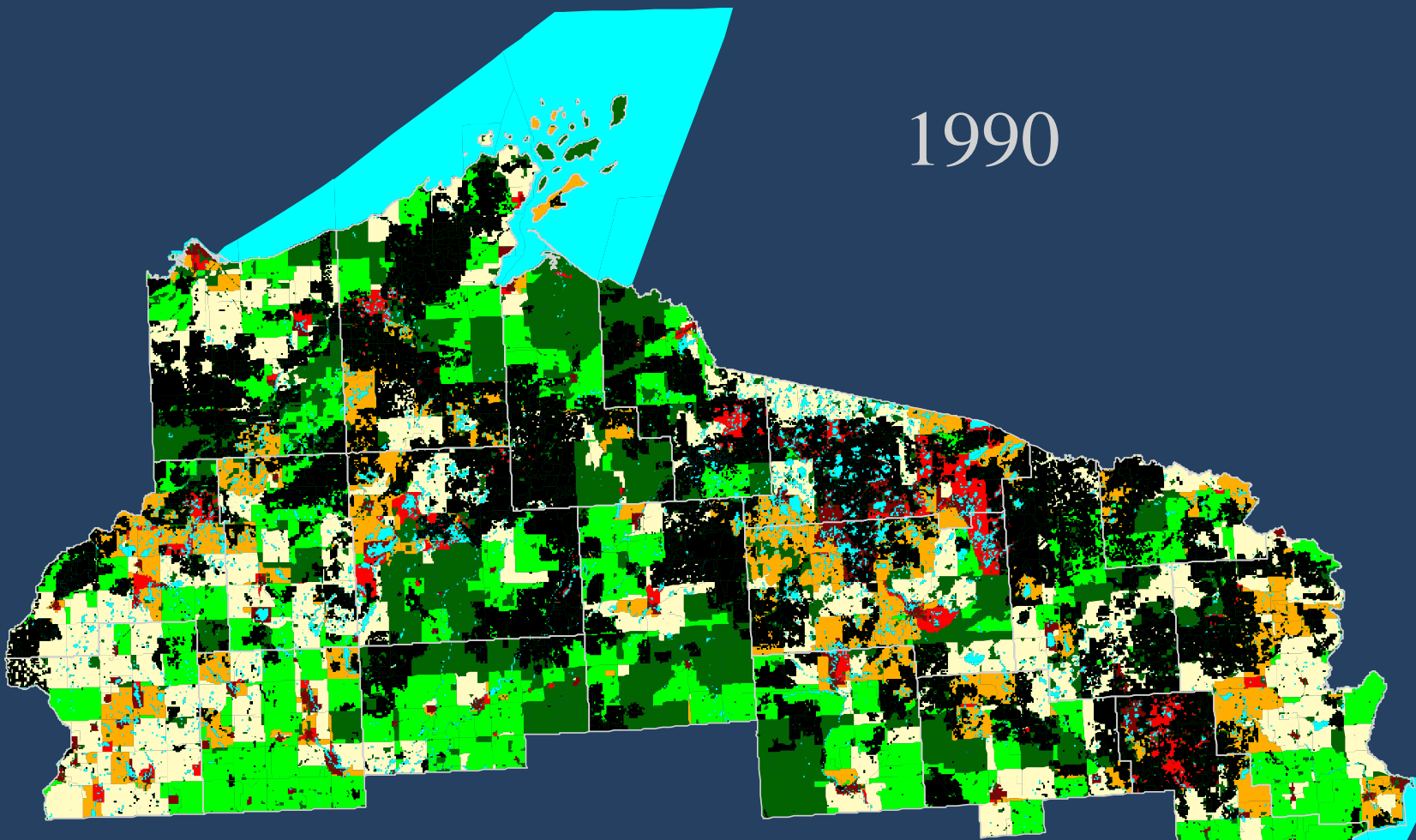


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# Population and Housing Growth in the North Woods

1990



50 0 50 100 Kilometers

Counties  
Public Land

Housing Units/Sq. Kilometer  
0 - 2  
2 - 4  
4 - 8  
8 - 16  
16 - 32  
> 32



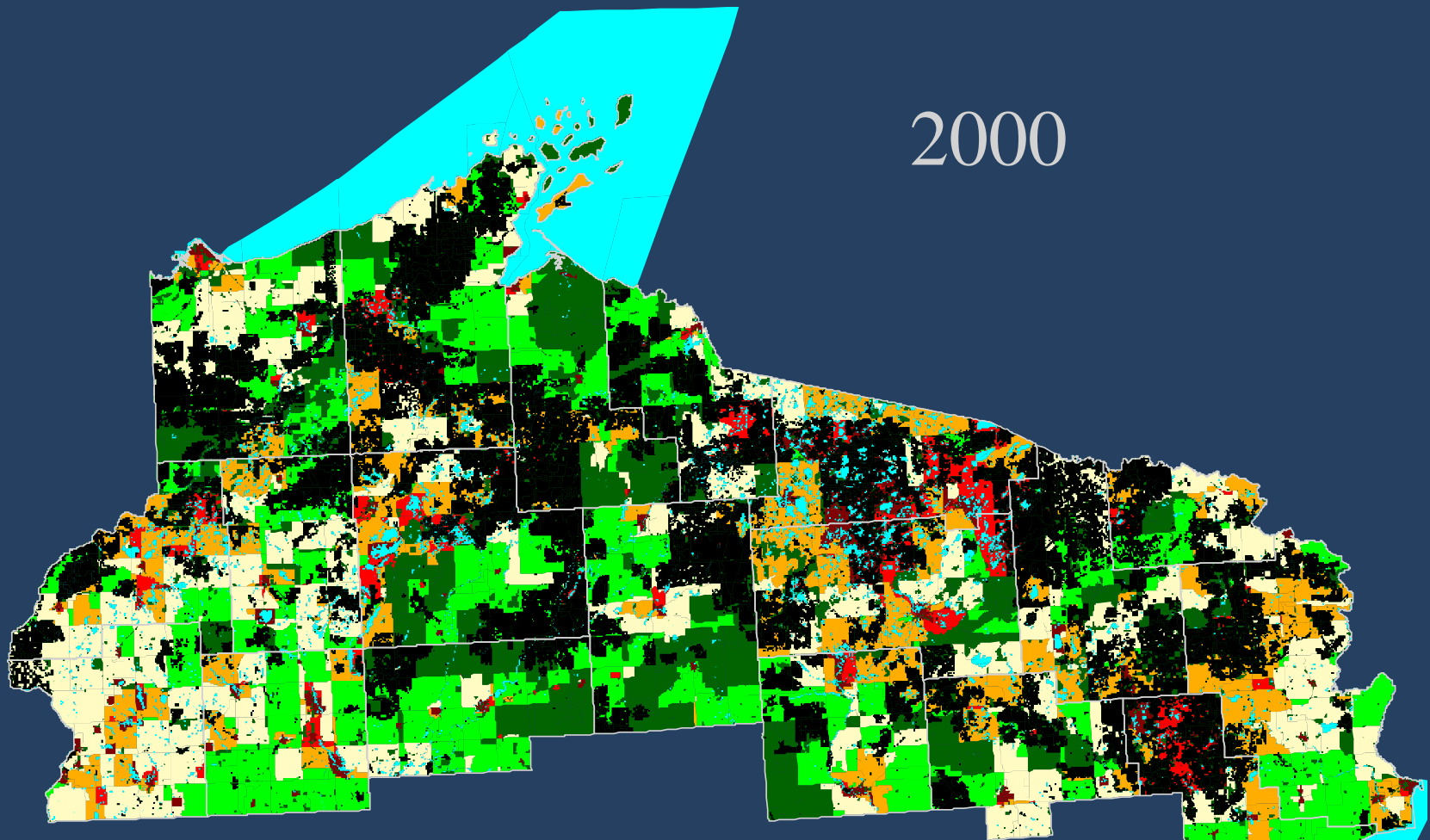
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# Population and Housing Growth in the North Woods

2000



50 0 50 100 Kilometers



Counties  
Public Land

Housing Units/Sq. Kilometer

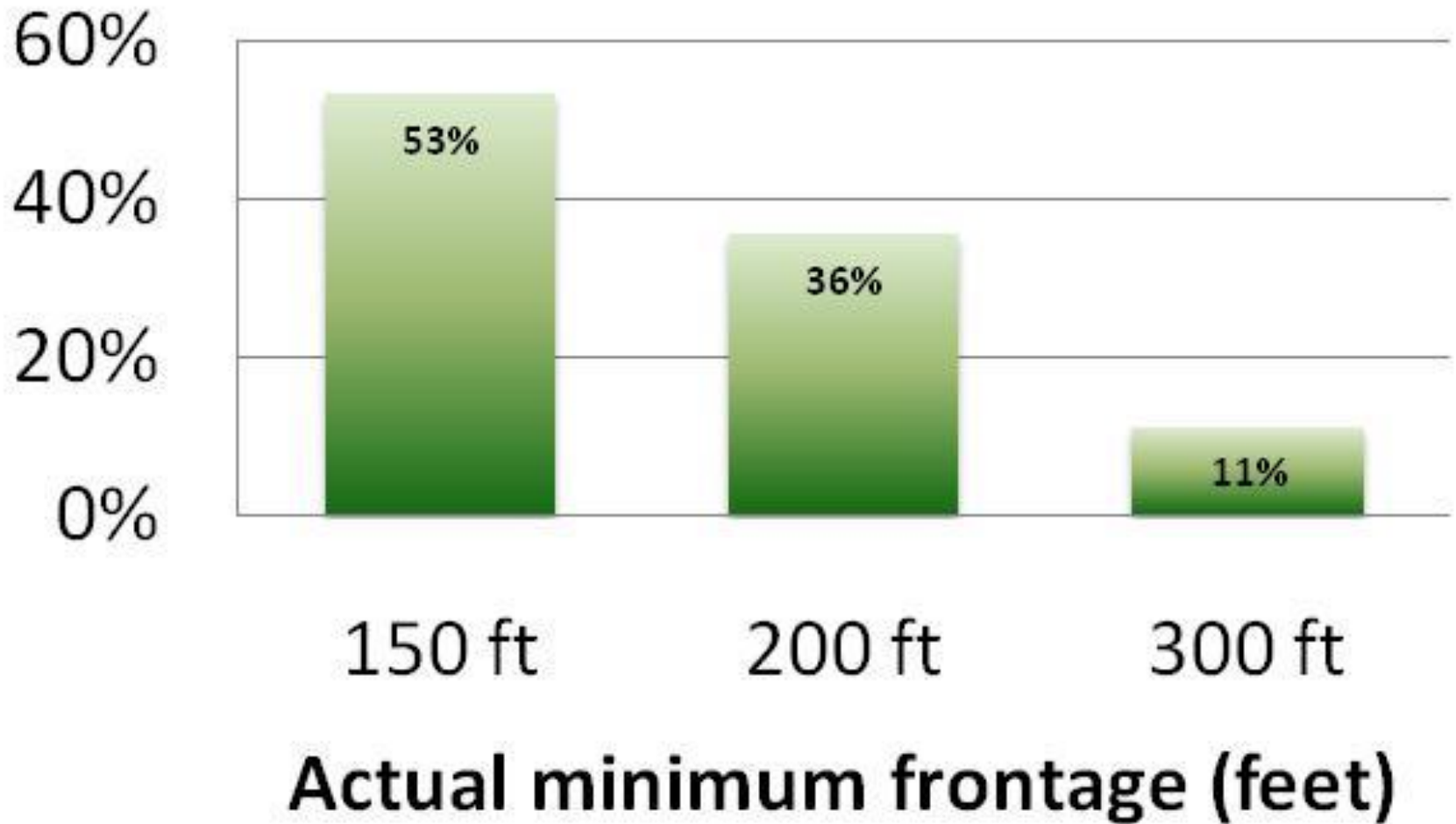
0 - 2	8 - 16
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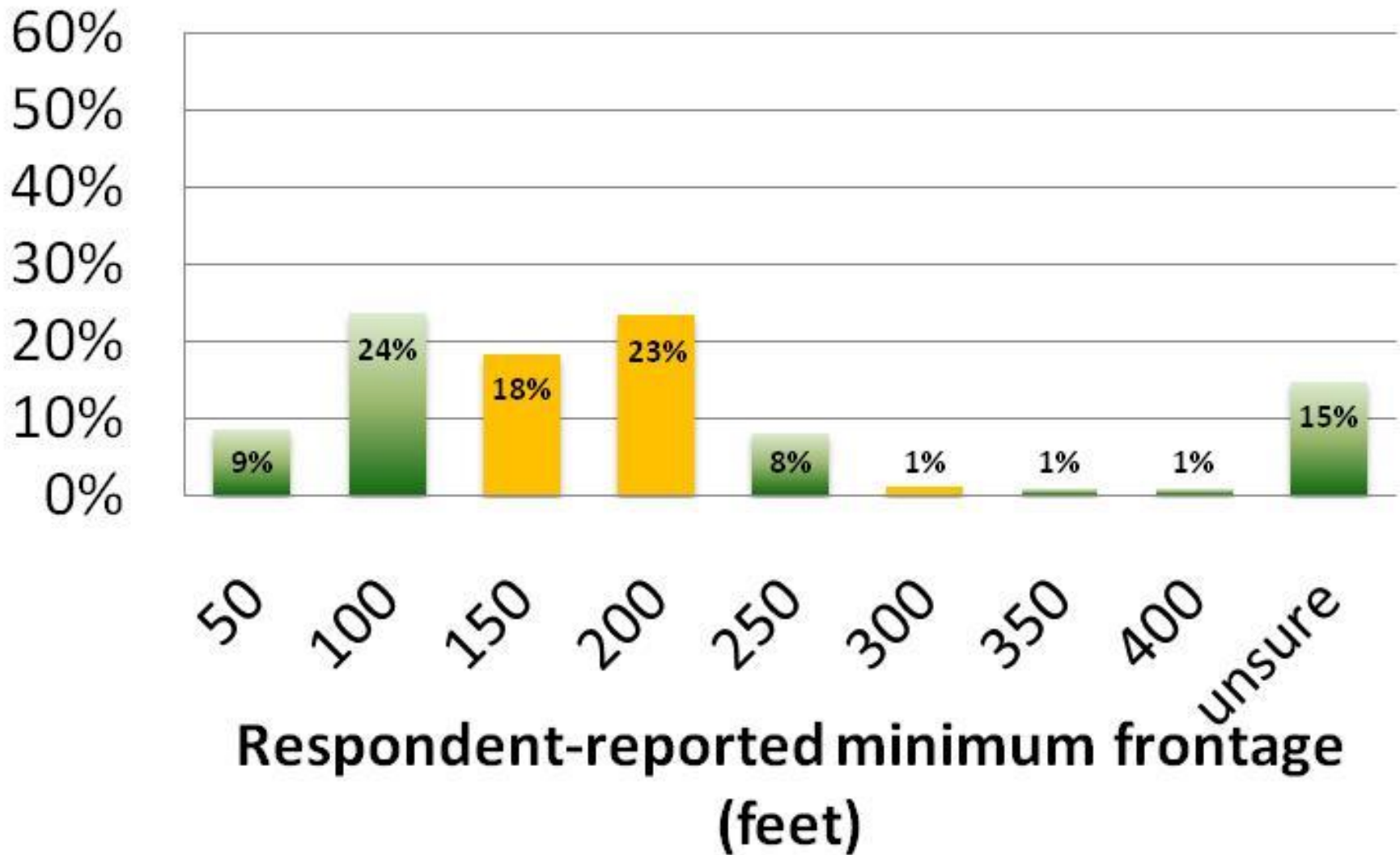


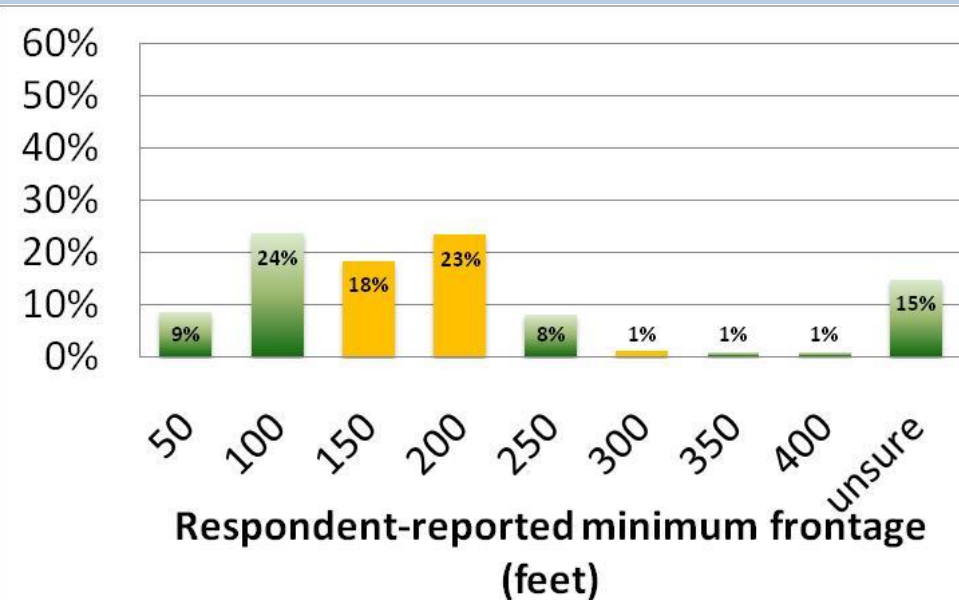
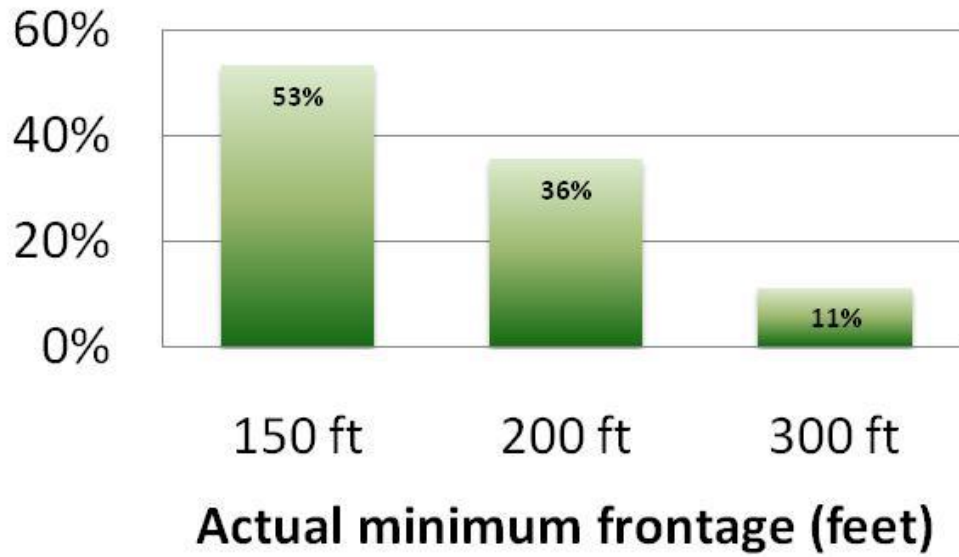
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# Minimum frontage zoning



# Property owners' guesses



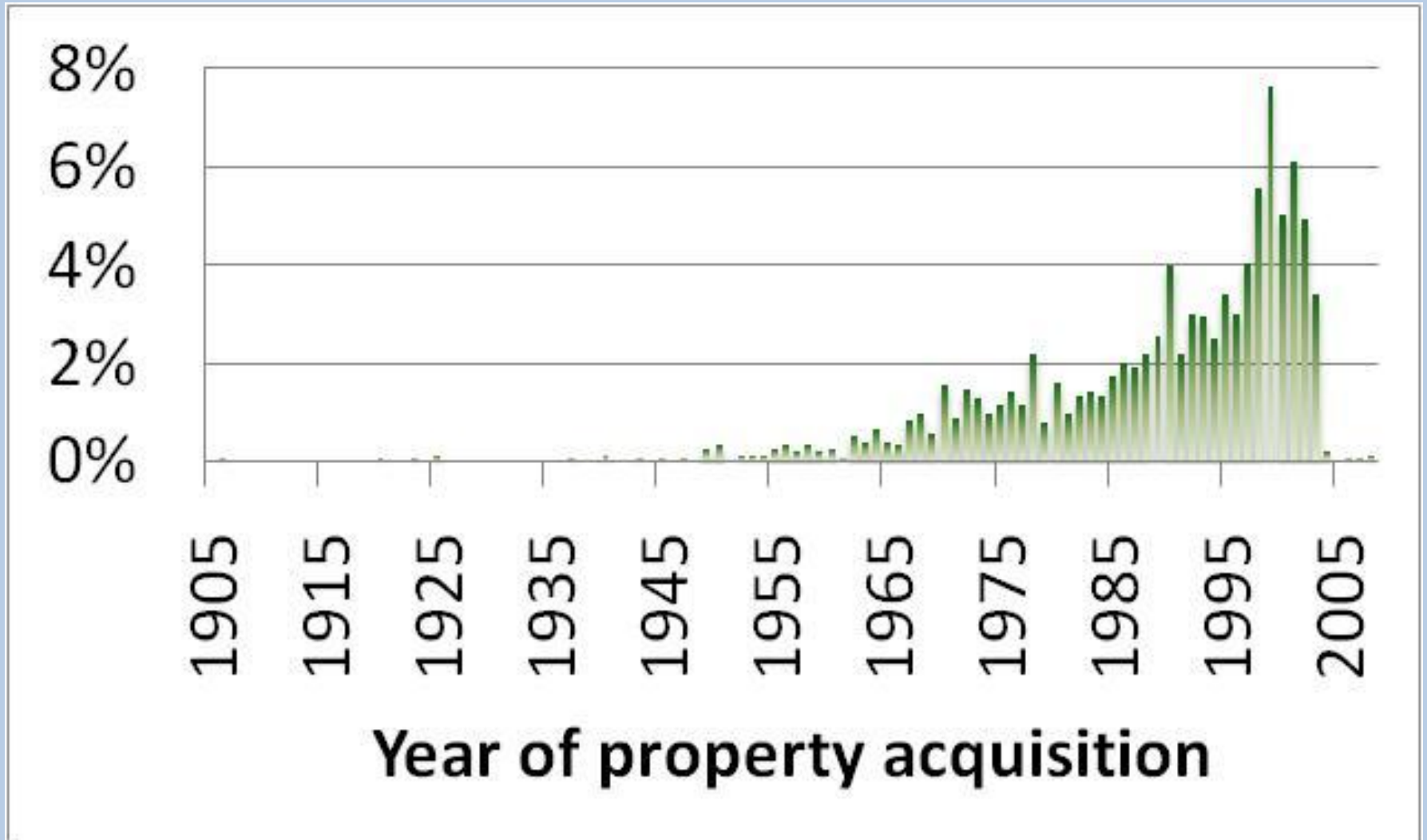




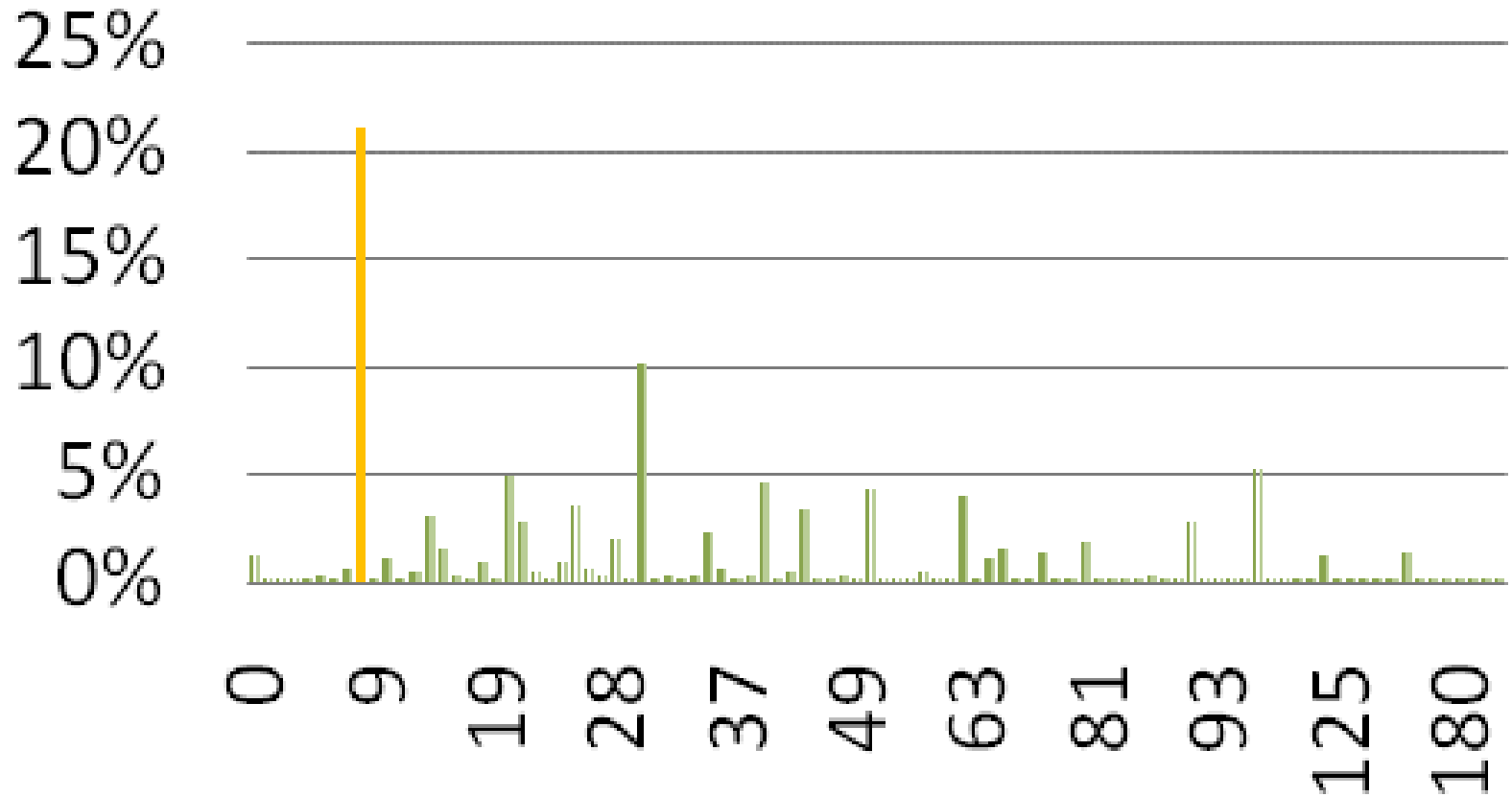
# 25% guessed right

		Actual minimum frontage		
		150	200	300
Respondent-reported minimum frontage	don't know	8%	5%	2%
	50	5%	3%	1%
	100	16%	6%	2%
	150	<b>13%</b>	5%	1%
	200	9%	<b>11%</b>	3%
	250	3%	4%	1%
	300	0%	0%	<b>1%</b>
	350	.	0%	1%
	400	.	0%	1%

# More about property owners



# Days per year spent on lake



Range= 0-200, Mean=39, Median=30

# Renters

- 25% of sample rents out
- Of these, the average rental days = 4
- Max rental days = 150
- 25% rented for 7 or more days

# Exotics

- Spiny water flea
- Rusty crayfish
- Zebra mussels
- Eurasian water-milfoil
- Rainbow smelt

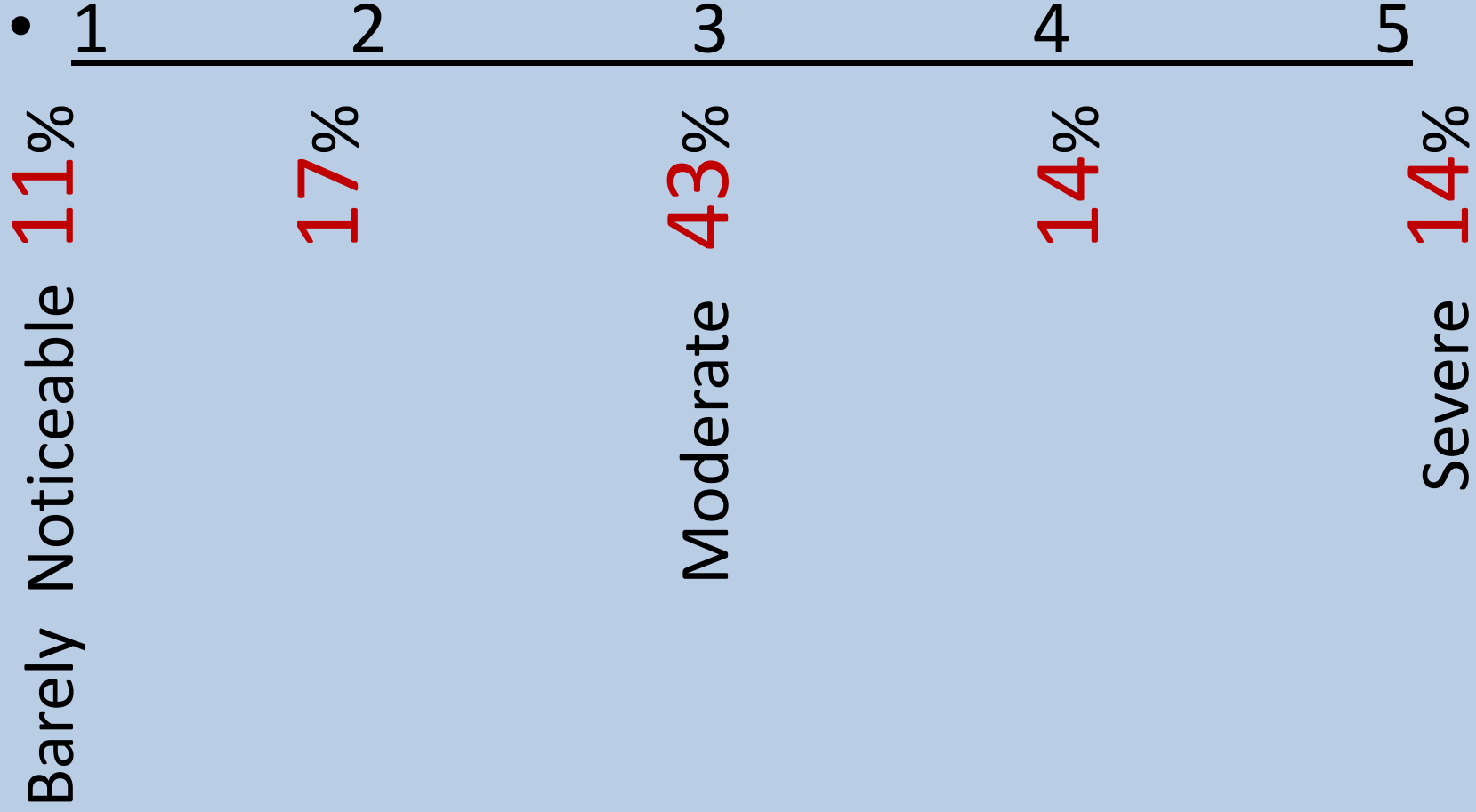
# How prevalent are they?

- Spiny water flea .....1 lake (Stormy)
- Rusty crayfish.....53 lakes
- Zebra mussels.....0 lakes
- EW Milfoil.....24 lakes (fewer in 2005)
- Rainbow smelt.....8 lakes

# Who knows about them?

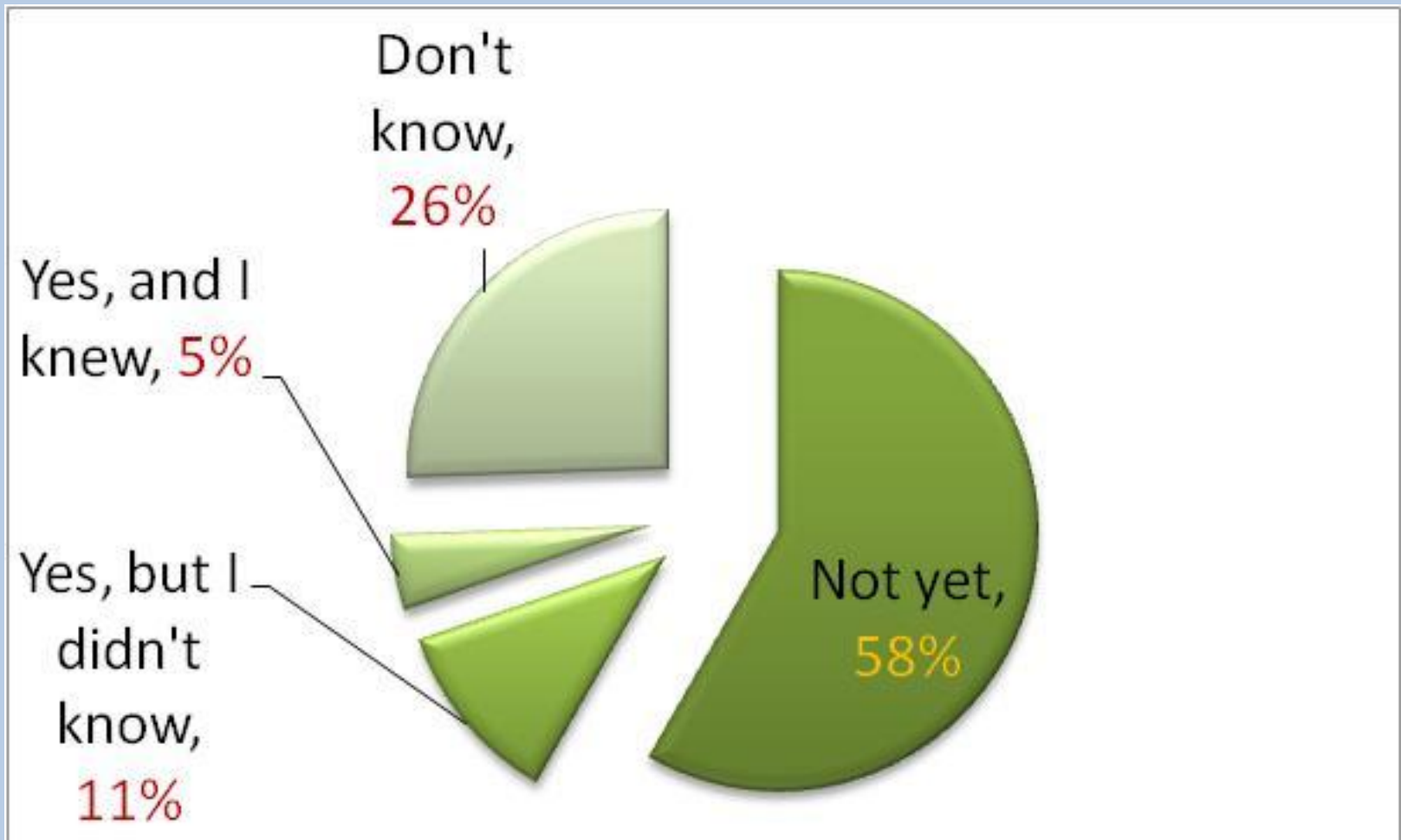
- Spiny water flea .....28% correct
- Rusty crayfish.....43% correct
- Zebra mussels.....54% correct
- EW Milfoil.....53% correct
- Rainbow smelt.....47% correct

# Current state of Milfoil on your lake

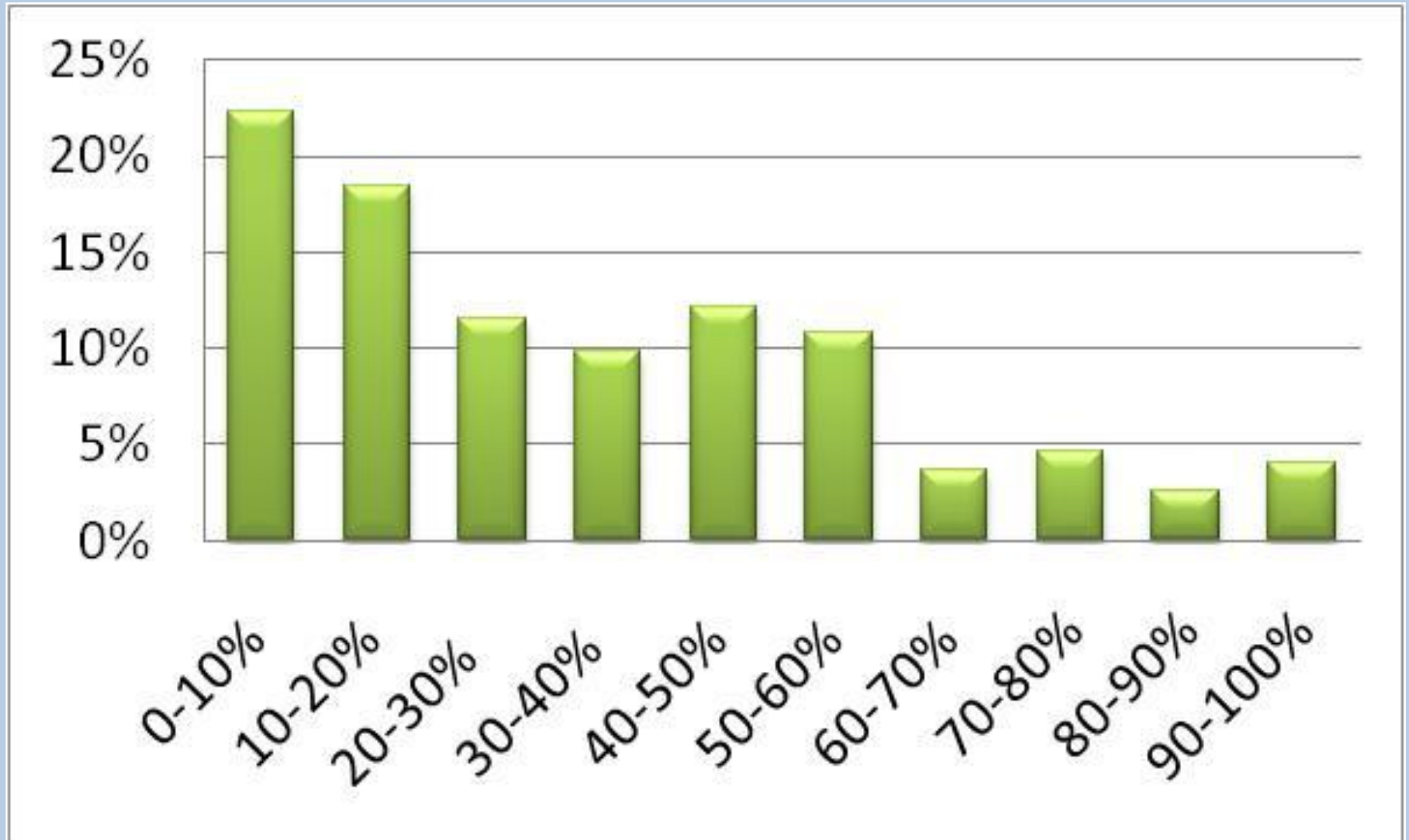




# Milfoil there, when you moved in?



# What chance will your lake be invaded in 10 years?

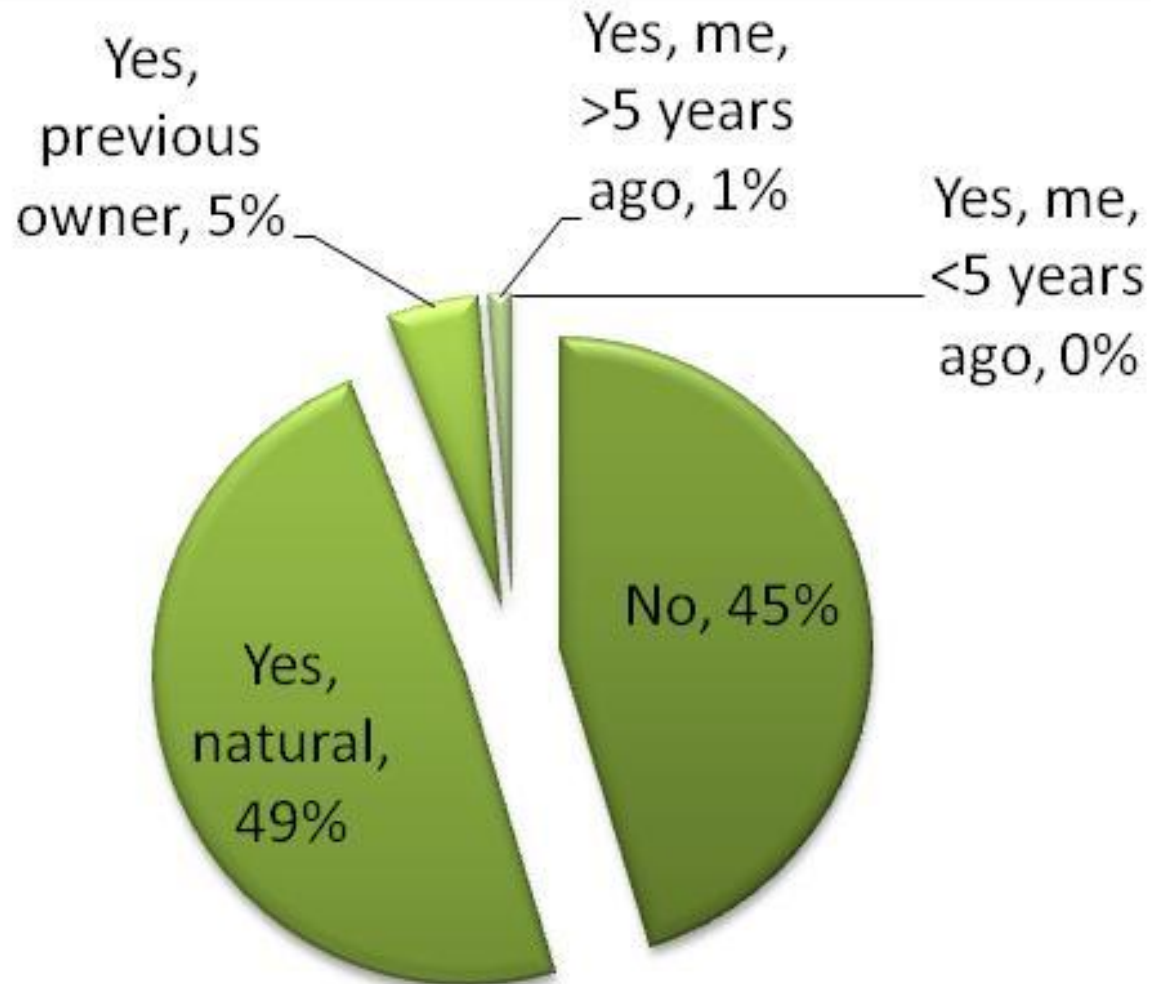


# Stewardship activities

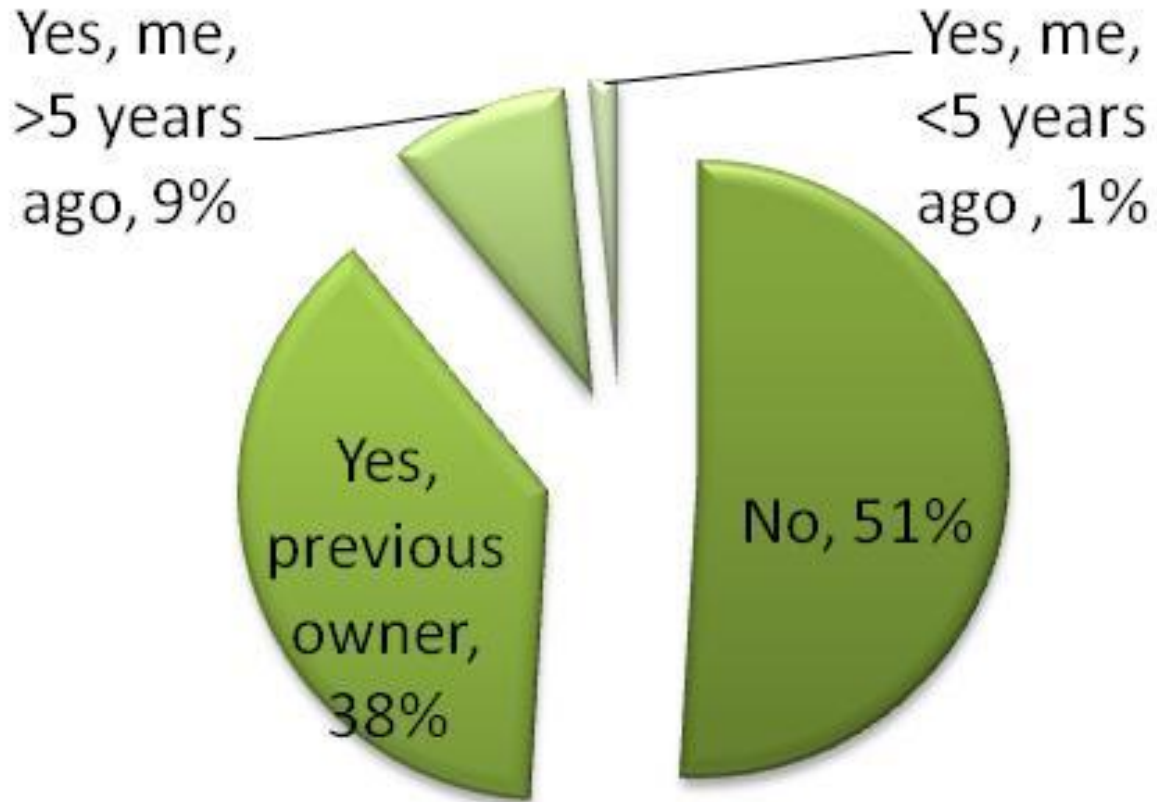
- Property characteristics

# Do you have a BEACH?

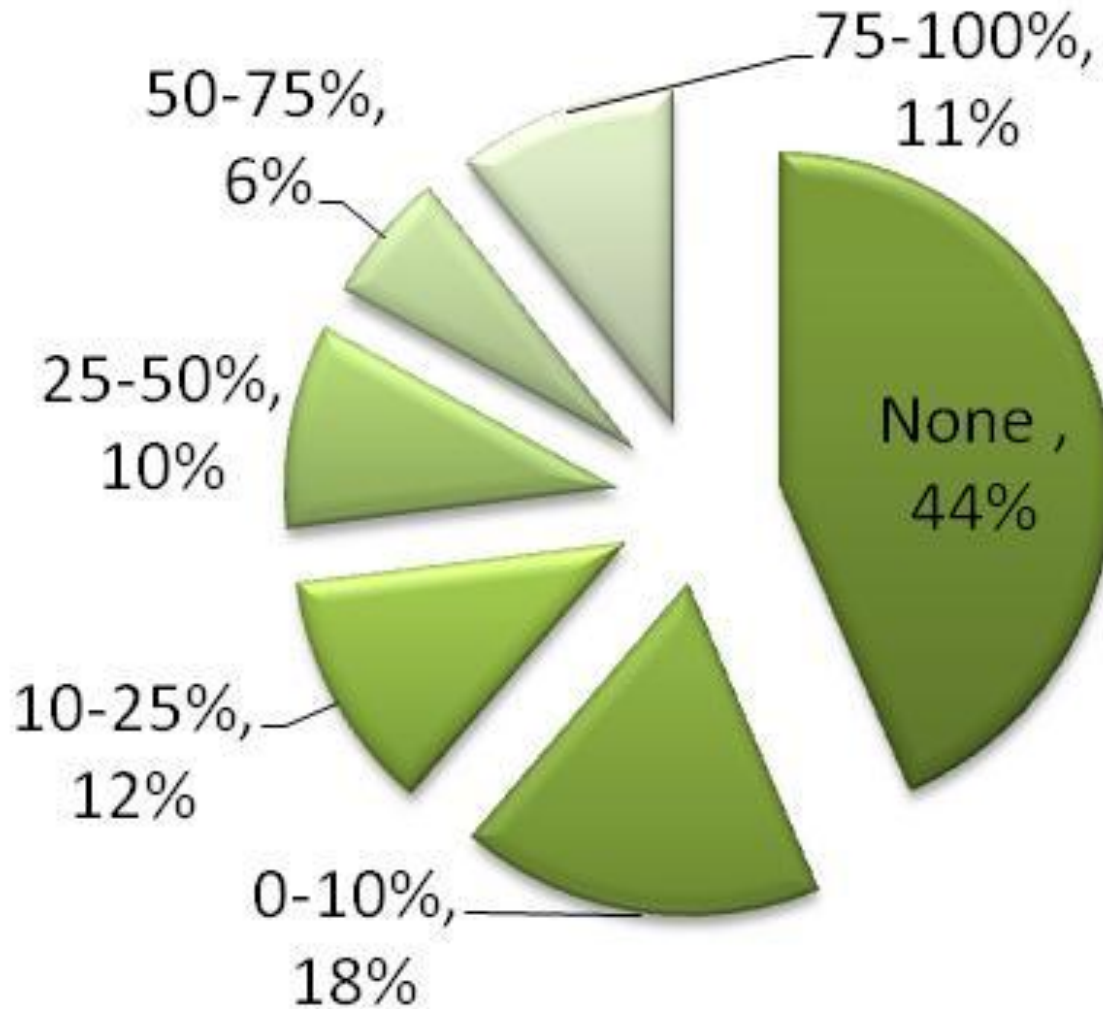
## Who put it in?



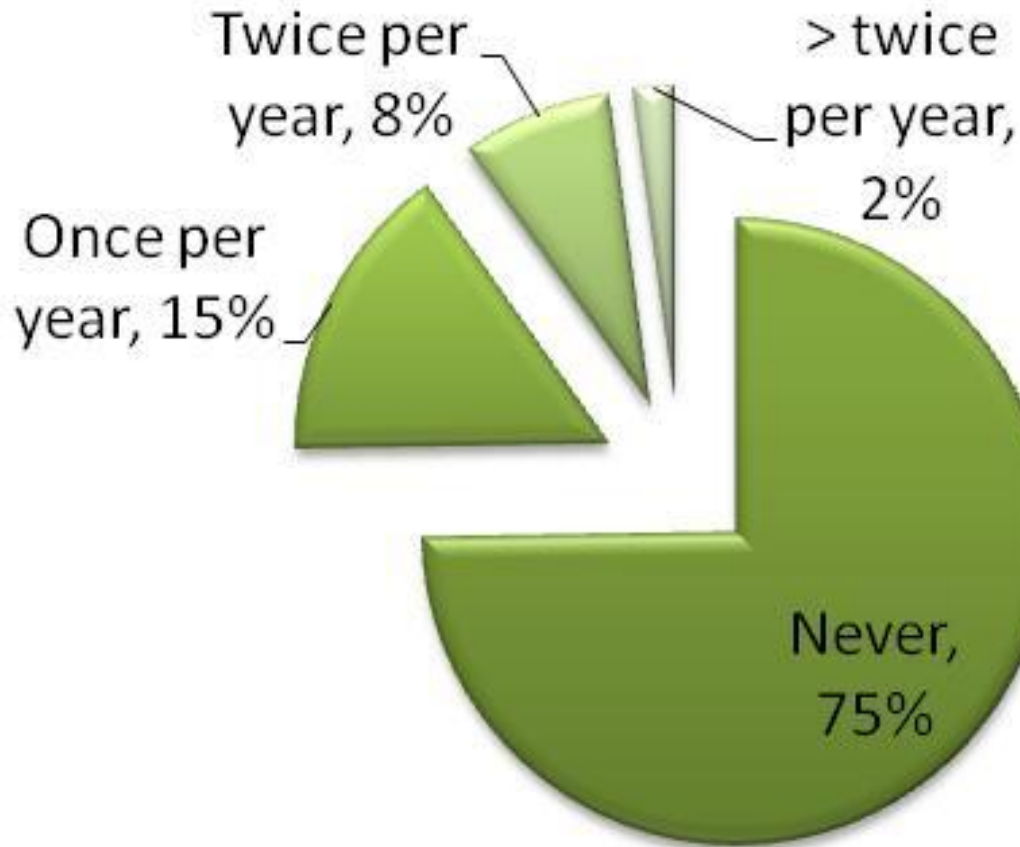
# A lawn?



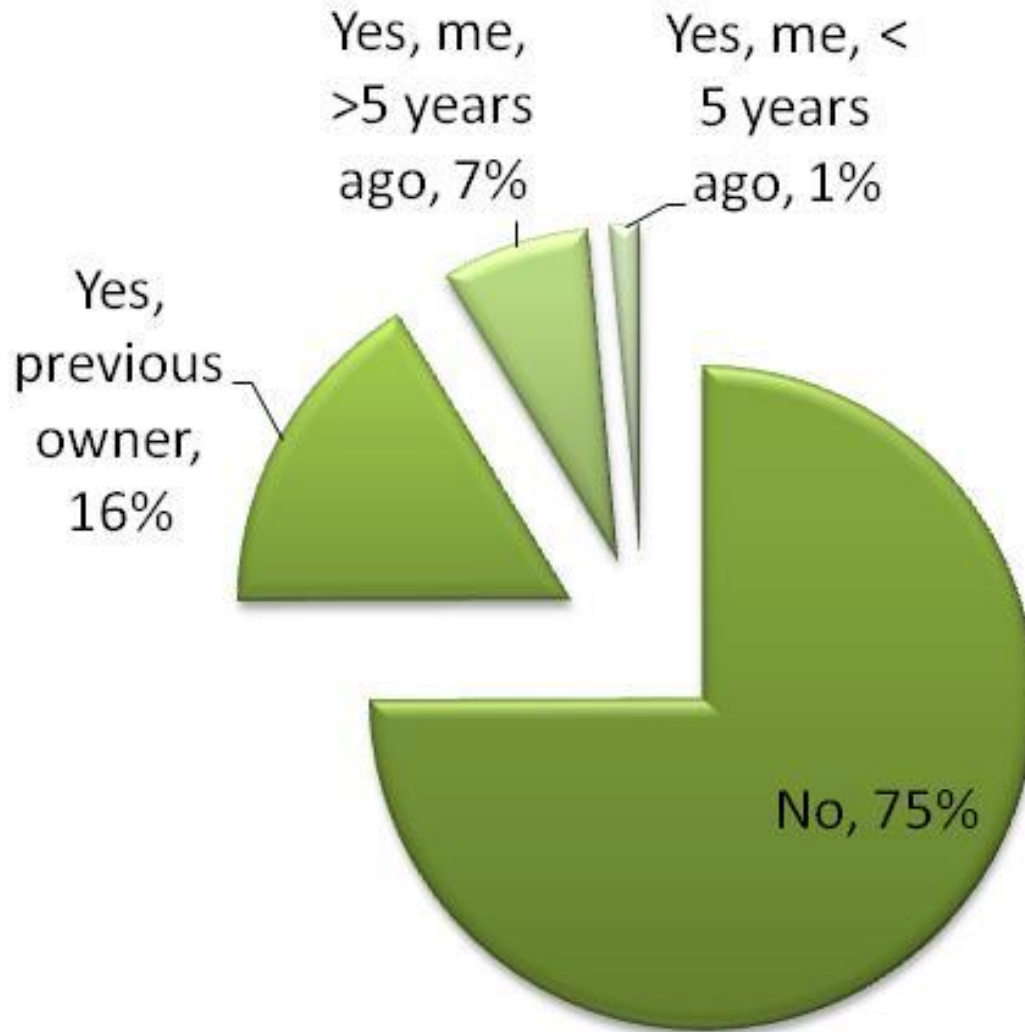
# Shoreline lawn?



# Fertilize lawn?

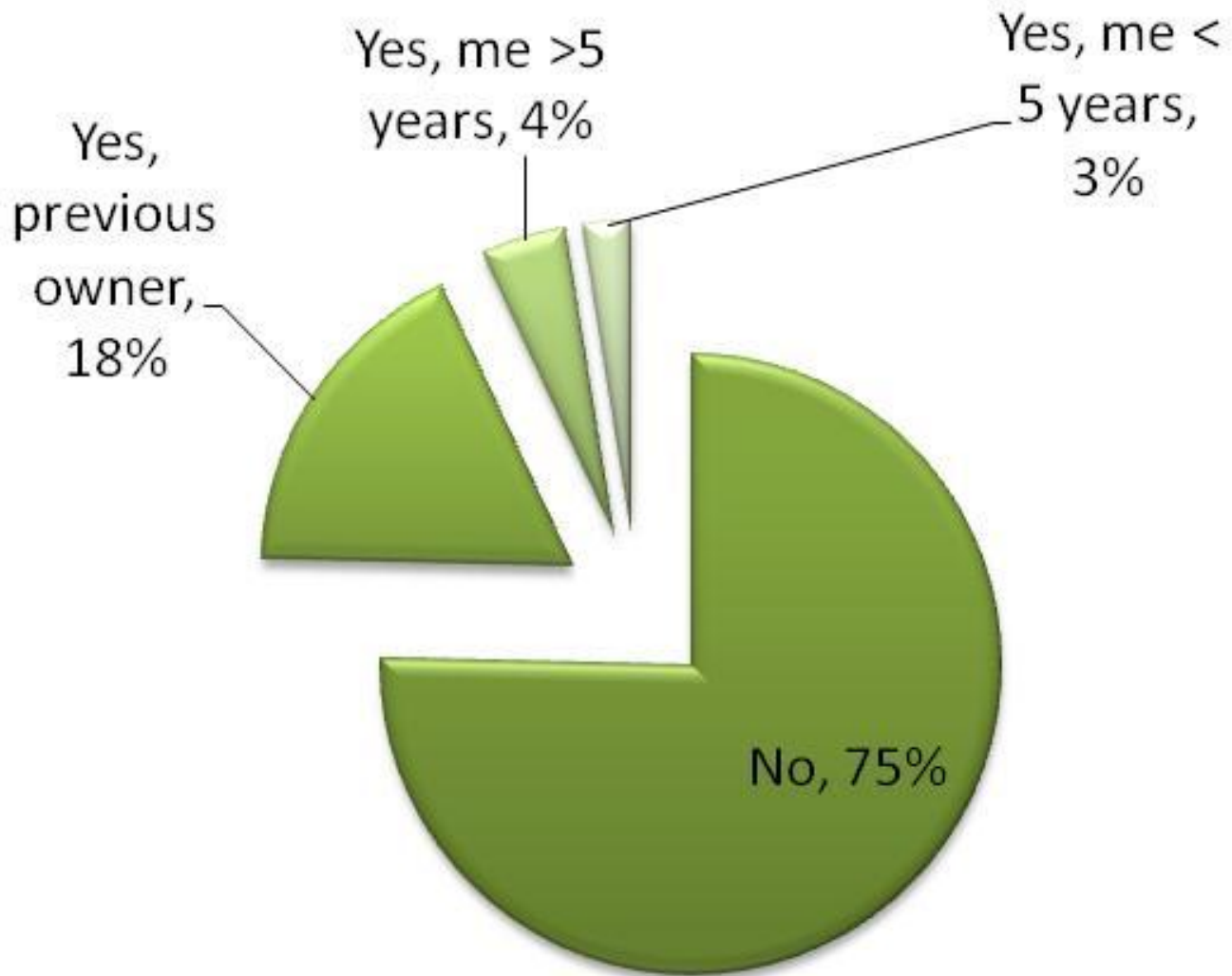


# Retaining wall or Rip Rap?





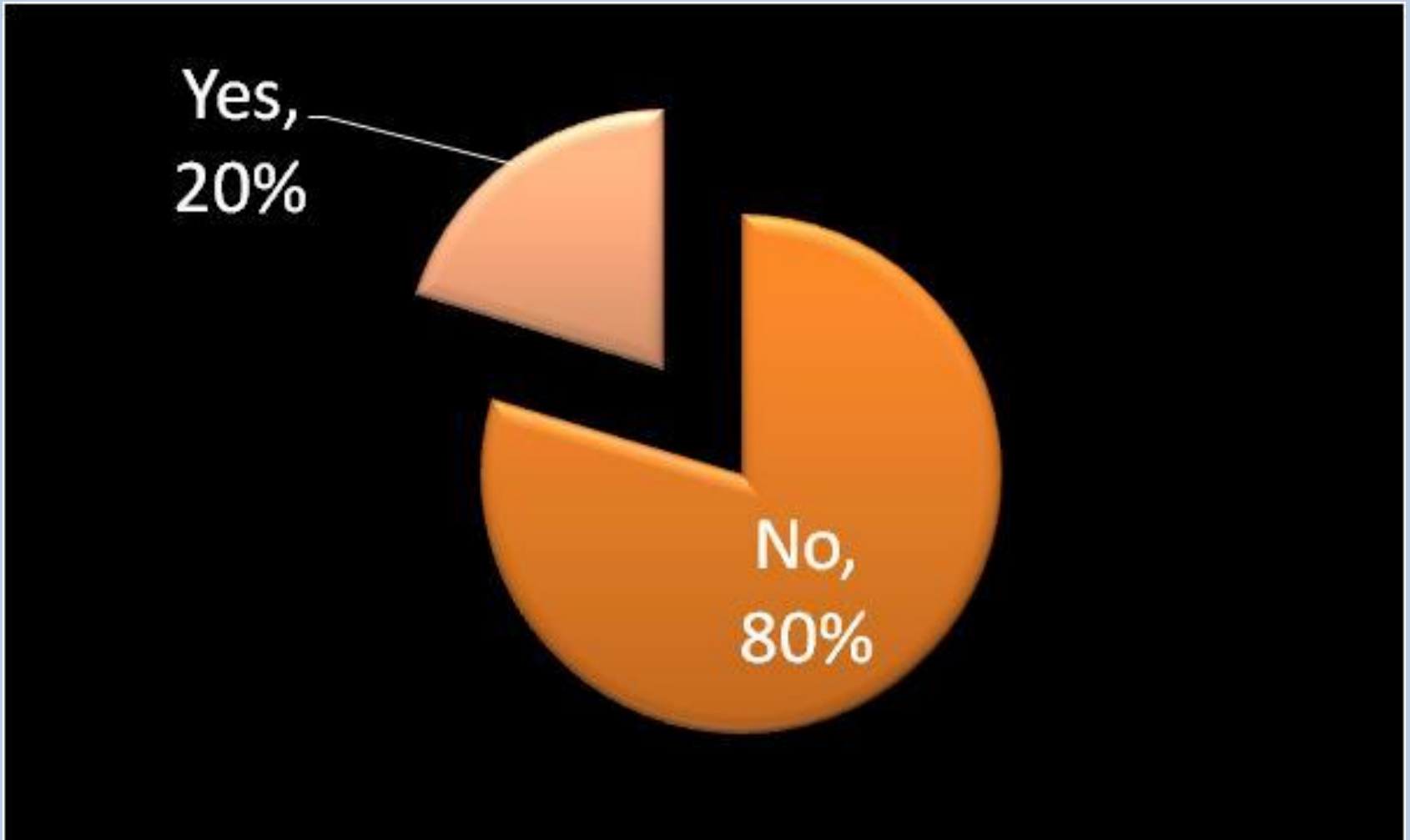
# Introduced fish habitat?



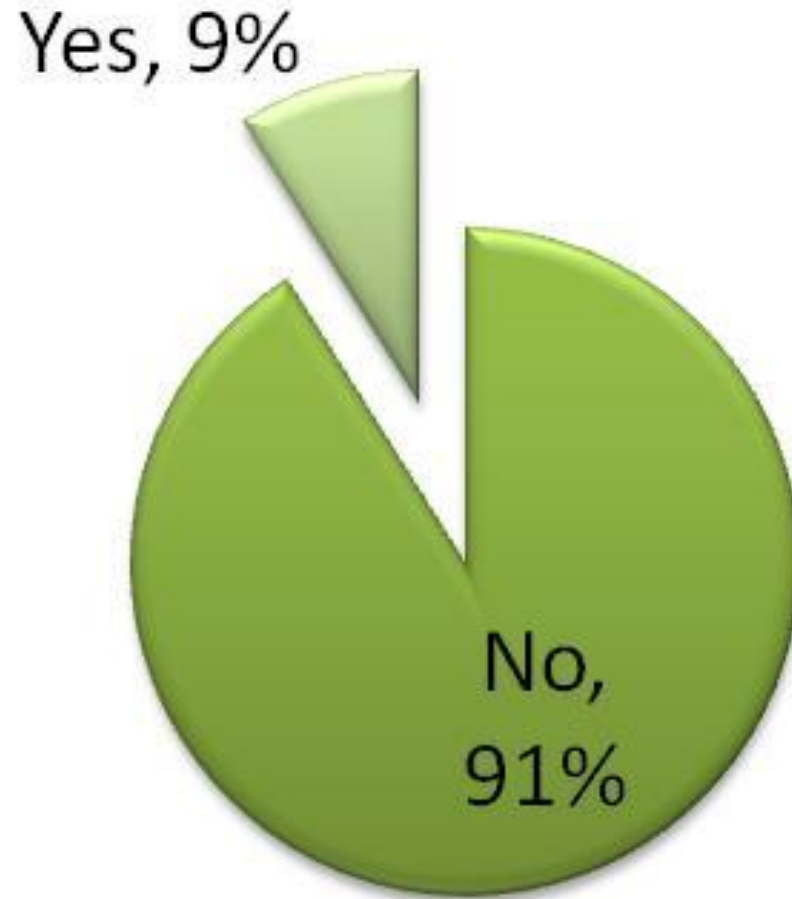
# Stewardship activities

- Behaviors

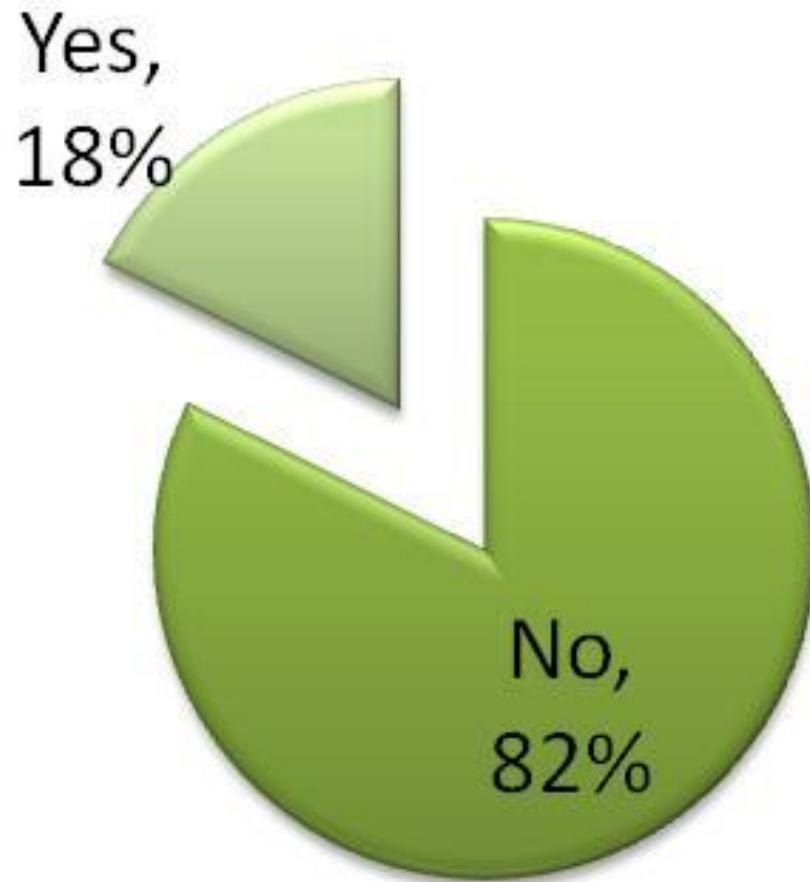
# Removed coarse woody debris?



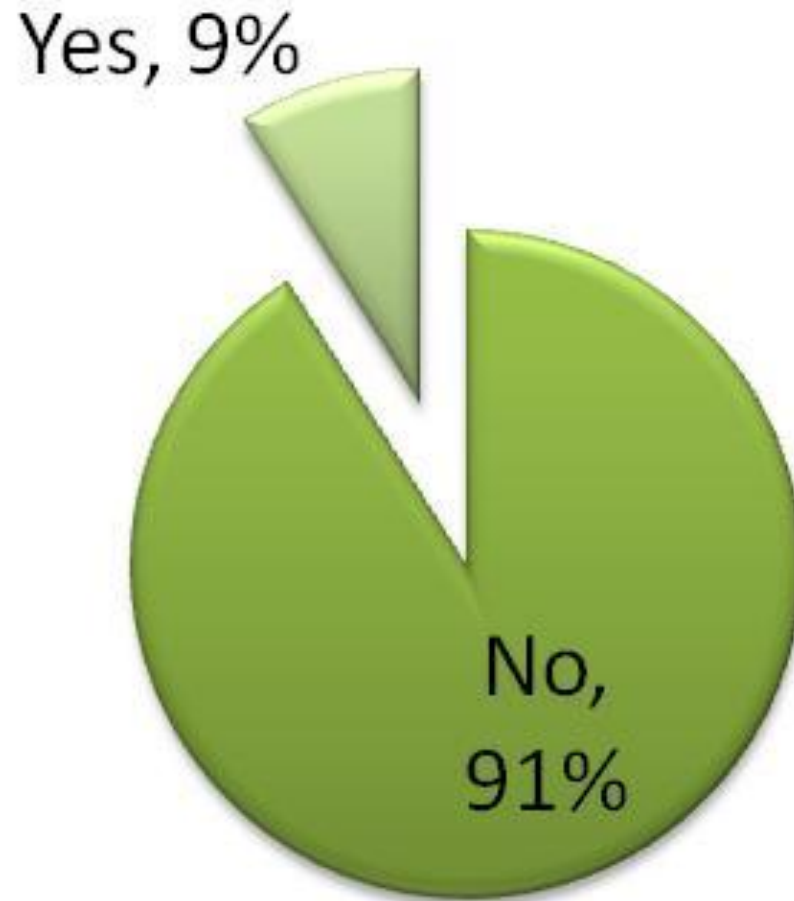
# Planted native vegetation on shore?



# Removed **aquatic** vegetation?



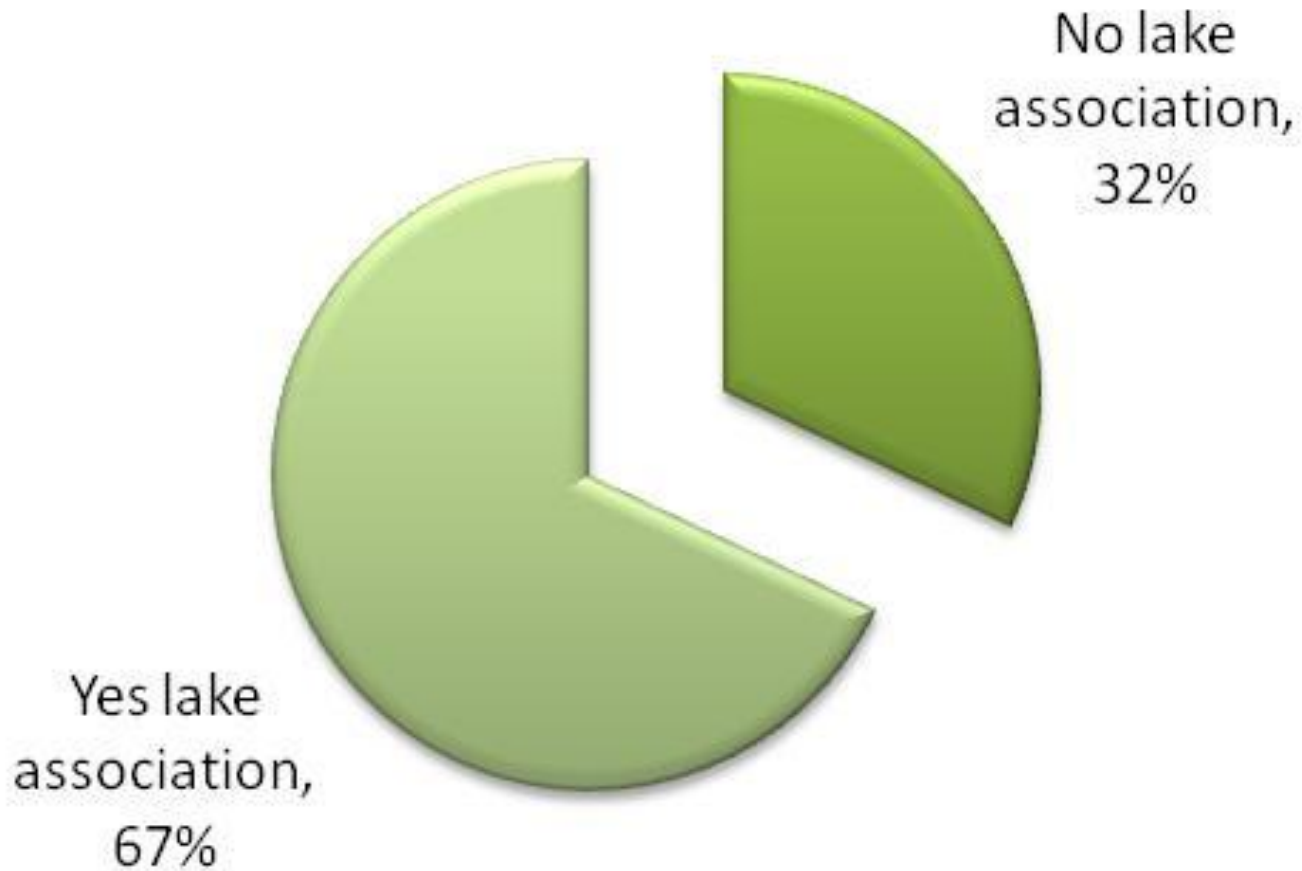
# Removed native **shoreline** vegetation?



# Cut trees along the shoreline?



# Does your lake have an association?

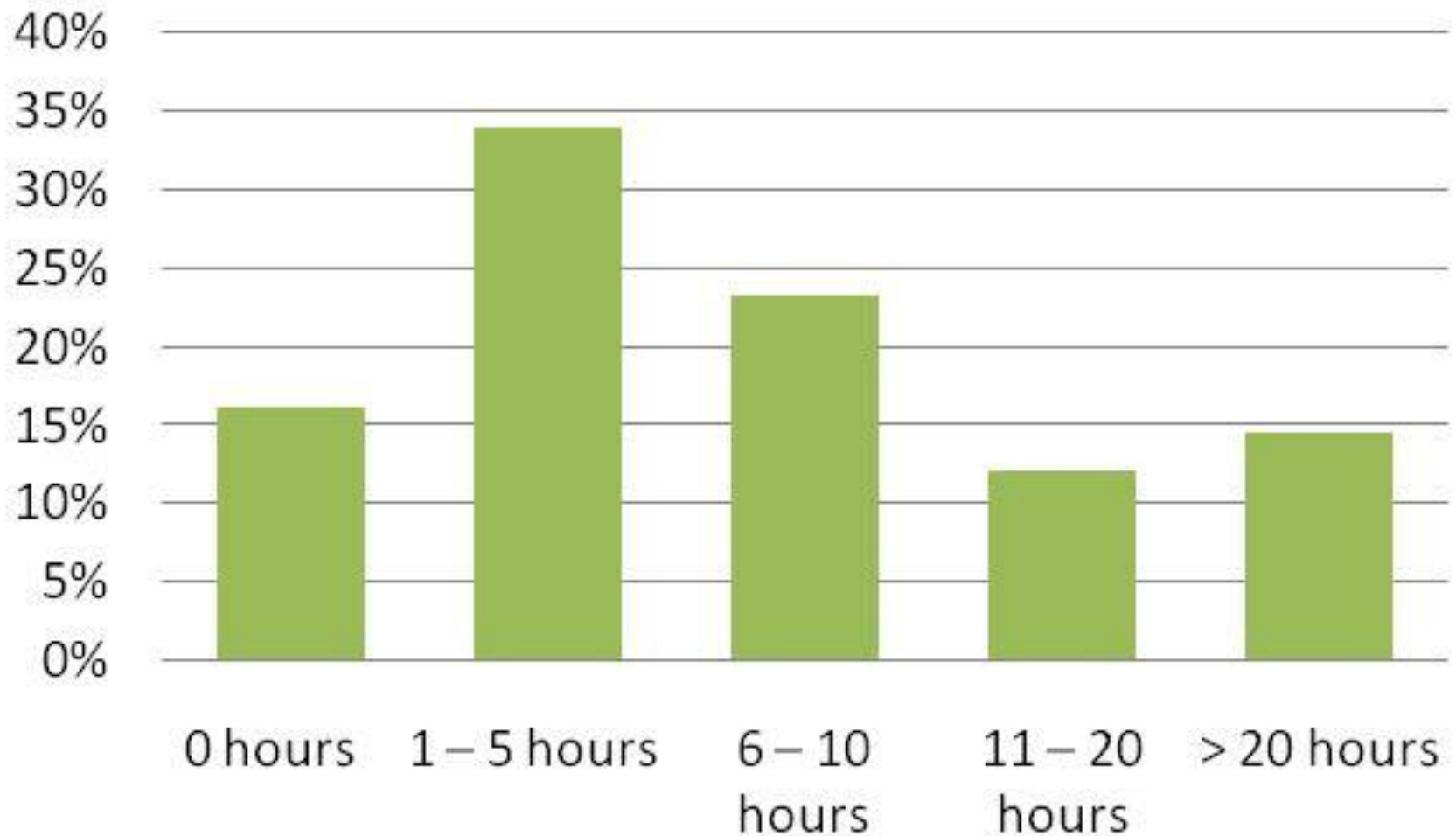





# Are you a member?



# Do you volunteer?



<b>Activity</b>	<i>I have not done this activity</i>	<i>I have done this activity on my own or with family or friends</i>	<i>I have done this activity with my lake association</i>	<i>I have done this activity with BOTH my family/friends and my lake association</i>
Collected water samples from my lake for analysis, or measured water clarity with a Secchi disk	89%	5%	6%	0%
Conducted aquatic habitat improvement projects (for fish or other aquatic life)	88%	5%	7%	0%
Monitored my lake for invasive aquatic species such as Eurasian water-milfoil or Rainbow Smelt	68%	 17%	14%	2%
Removed invasive aquatic species such as Eurasian water-milfoil or Rainbow Smelt	92%	4%	3%	0%
Planted native aquatic vegetation <b>in the lake</b> along the lake shoreline	97%	2%	1%	0%

# Recreation activities

# All respondents

Number of days household members participate in the						
Activity	0 days	1-6 days	7-14 days	15-30 days	30-60 days	more than 60 days
Fishing	9%	19%	20%	28%	15%	9%
Boating	9%	13%	17%	31%	18%	11%
Water skiing	53%	18%	13%	10%	3%	1%
Canoeing/ Kayaking/ Rowing	30%	26%	20%	14%	7%	2%
Sailing/ Windsurfing	82%	10%	4%	2%	1%	0%
Jet skiing	83%	7%	4%	4%	2%	1%
Swimming	12%	18%	21%	26%	14%	8%

# By minimum frontage zoning

<b>Number of Days household spend BOATING</b>						
	0 days	1-6 days	7-14 days	15-30 days	30-60 days	more than 60 days
150	7	13	17	30	18	11
200	6	9	17	32	18	13
300	24	17	17	21	13	6

# By minimum frontage zoning

<b>Number of Days household spend CANOEING</b>						
	0 days	1-6 days	7-14 days	15-30 days	30-60 days	more than 60 days
150	32	25	18	11	5	1
200	22	25	22	14	8	2
300	20	21	19	21	12	4

# The percentage of household's fishing time spent on their lake.

Household did not fish	10%
0% of the time	1%
1-10% of the time	6%
10-20% of the time	11%
20-30% of the time	2%
30-40% of the time	8%
40-50% of the time	2%
50-60% of the time	1%
60-70% of the time	1%
70-80% of the time	3%
80-90% of the time	24%
90-99% of the time	6%
100% of the time	25%

30% of respondents fished on **OTHER LAKES** more than half the time.

Over half of all respondents fished on **THEIR OWN LAKE** more than 80% of the time.



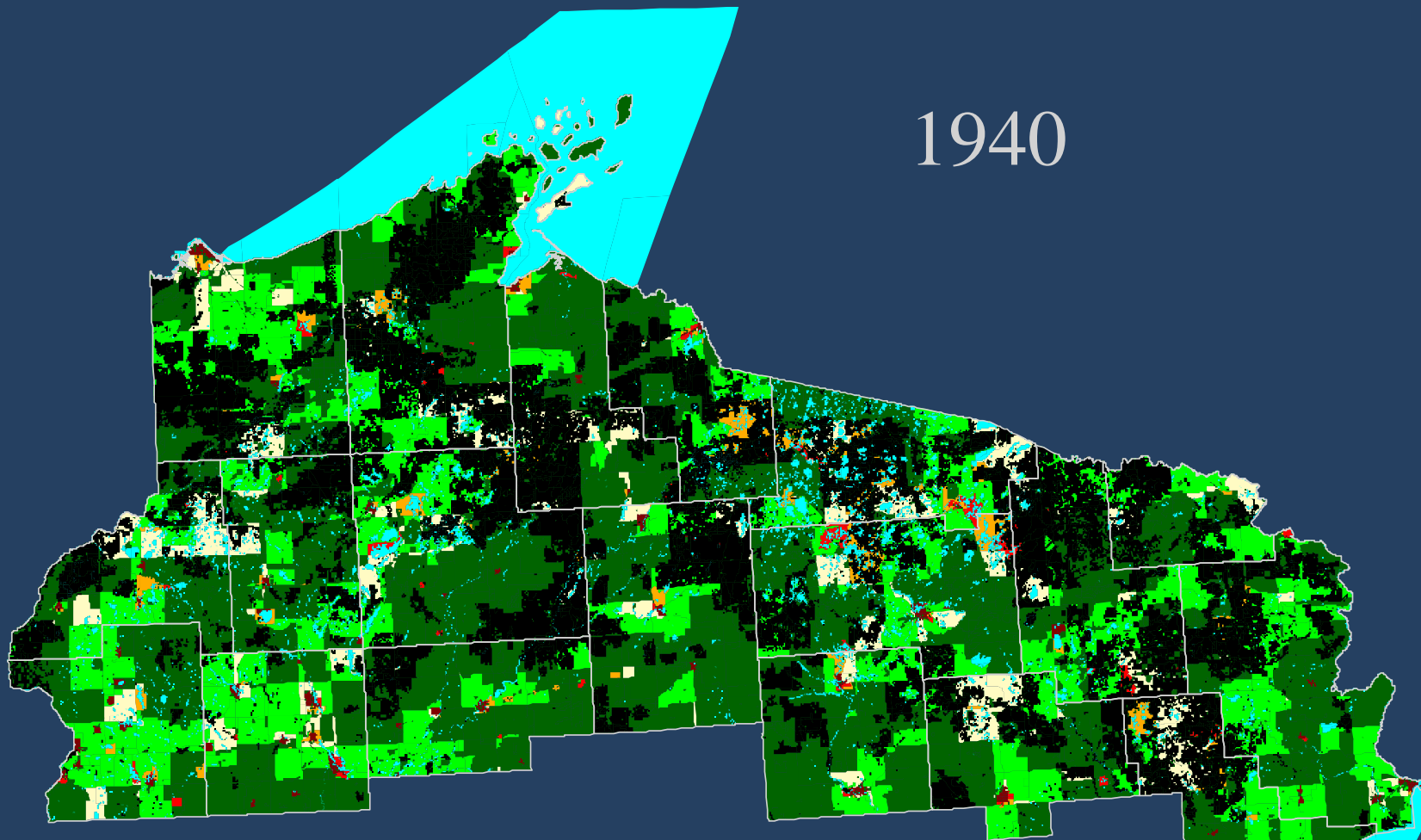
Improve the quality of fishing on my lake	50%
Reduce the amount of development on my lake	41%
Reduce the “weediness” of the lake in midsummer	32%
Make my lake “quieter” (fewer motor boats and jet skis)	29%
Make shoreline development restrictions more strict	22%
Improve water clarity on my lake	21%
Remove public access to my lake	17%
Make my lake bigger	15%
Increase the amount of public shoreline (national, state forest) on my lake	14%
Make shoreline development restrictions less strict	8%
Move my lake further away from the nearest community with major services	3%
Improve road access to my lake	3%
Move my lake closer to the nearest community with major services (either Eagle River or Minoqua-Woodruff)	2%
Add public access to my lake	1%
Decrease the amount of public shoreline (national, state forest) on my lake	1%
Reduce the distance to public lands available for recreation (hunting, hiking, etc.)	1%
Make my lake smaller	0%
Increase the amount of development on my lake	0%

# Follow-up Survey

- UW-Madison Center for Limnology
- NSF Long Term Ecological Research Program
- Social science survey fielded every 6 years for a long time
- Metric of how these attitudes and behavior change in the long-run
- Can be tied to measures of land and water change over time, to reveal feedbacks.

# Population and Housing Growth in the North Woods

## 1940



50 0 50 100 Kilometers



Counties  
Public Land

Housing Units/Sq. Kilometer

0 - 2	8 - 16
2 - 4	16 - 32
4 - 8	> 32

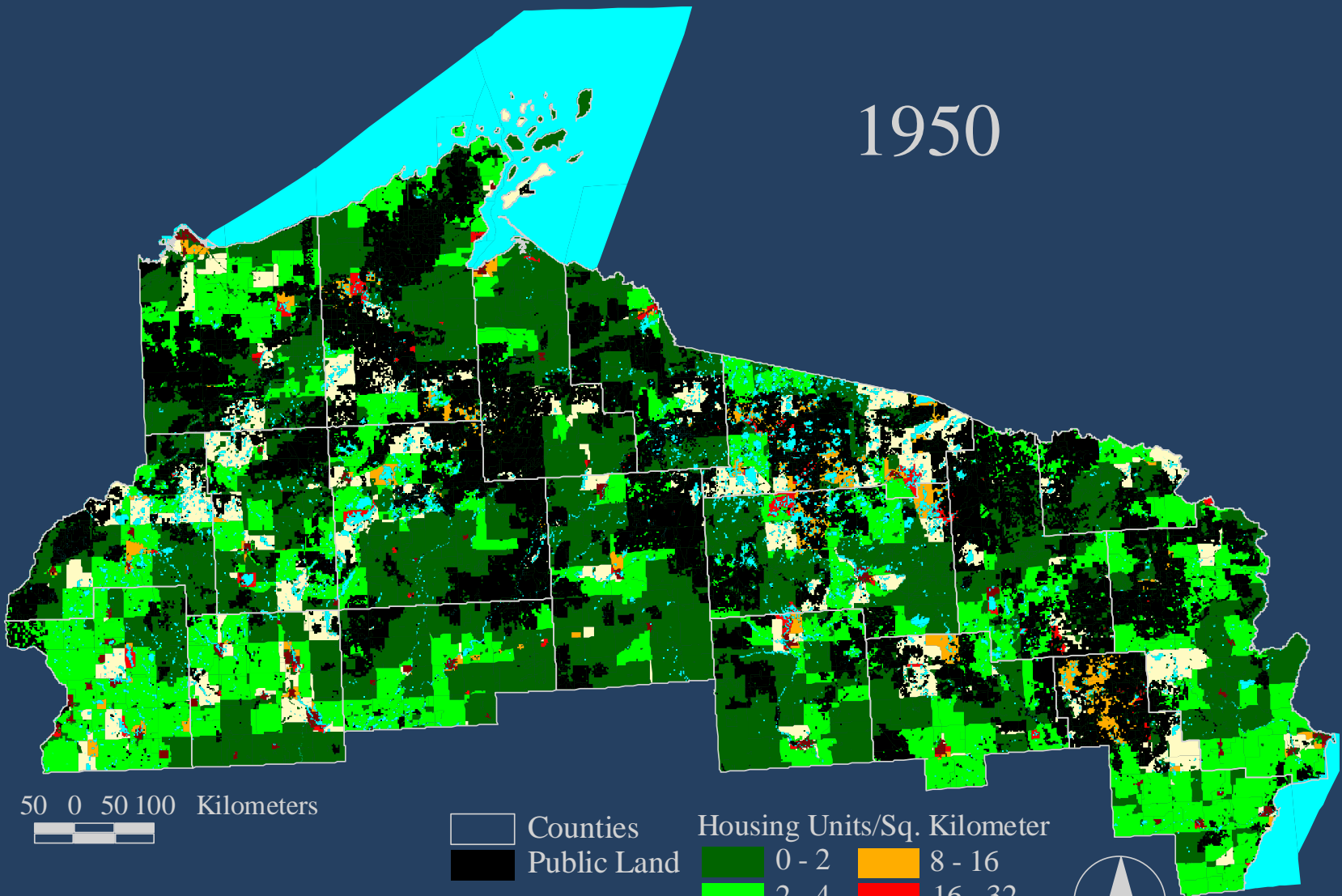
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# Population and Housing Growth in the North Woods

## 1950



50 0 50 100 Kilometers



Counties  
Public Land

Housing Units/Sq. Kilometer

0 - 2	8 - 16
2 - 4	16 - 32
4 - 8	> 32

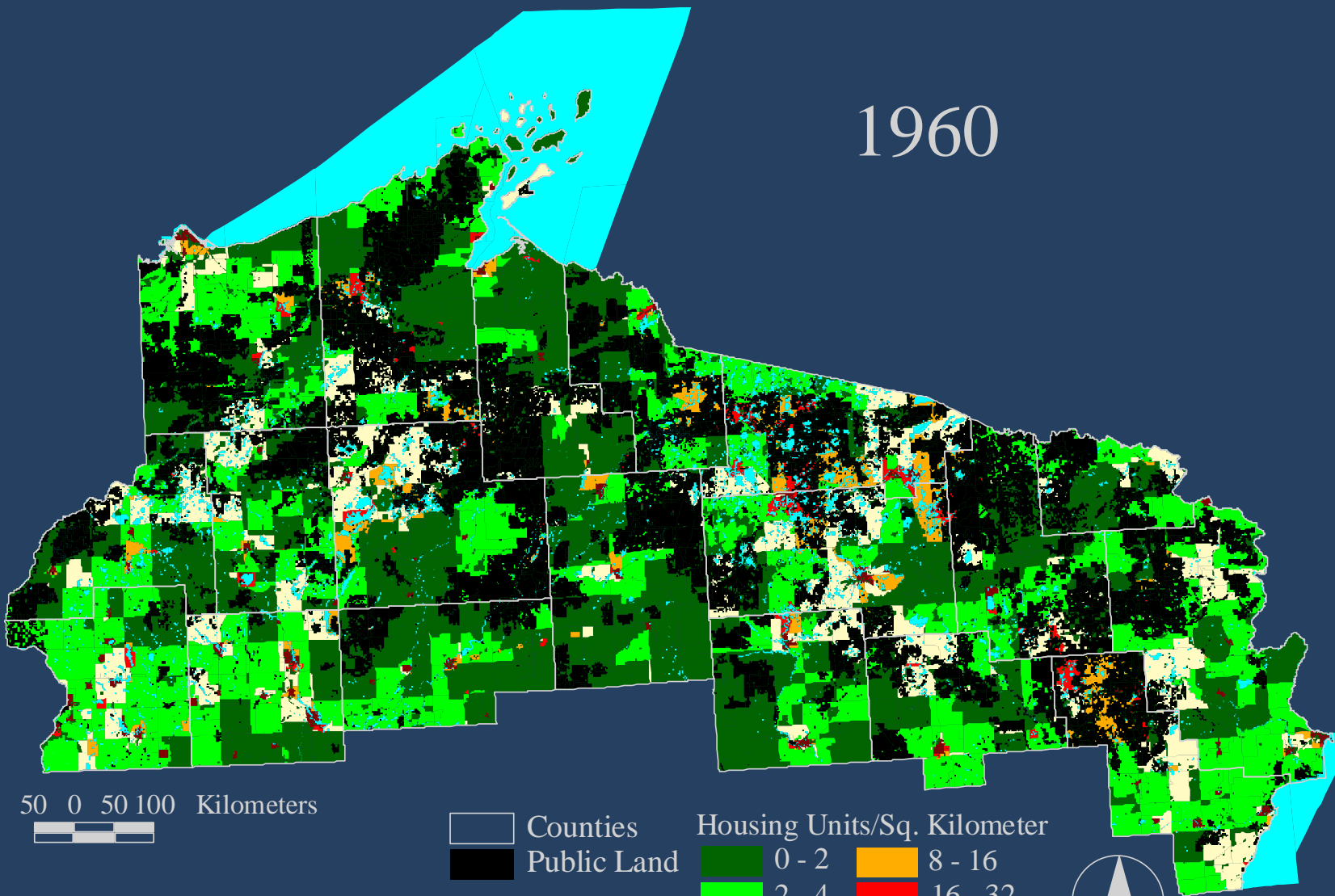


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# Population and Housing Growth in the North Woods

## 1960



50 0 50 100 Kilometers

Counties  
Public Land

Housing Units/Sq. Kilometer

0 - 2	8 - 16
2 - 4	16 - 32
4 - 8	> 32



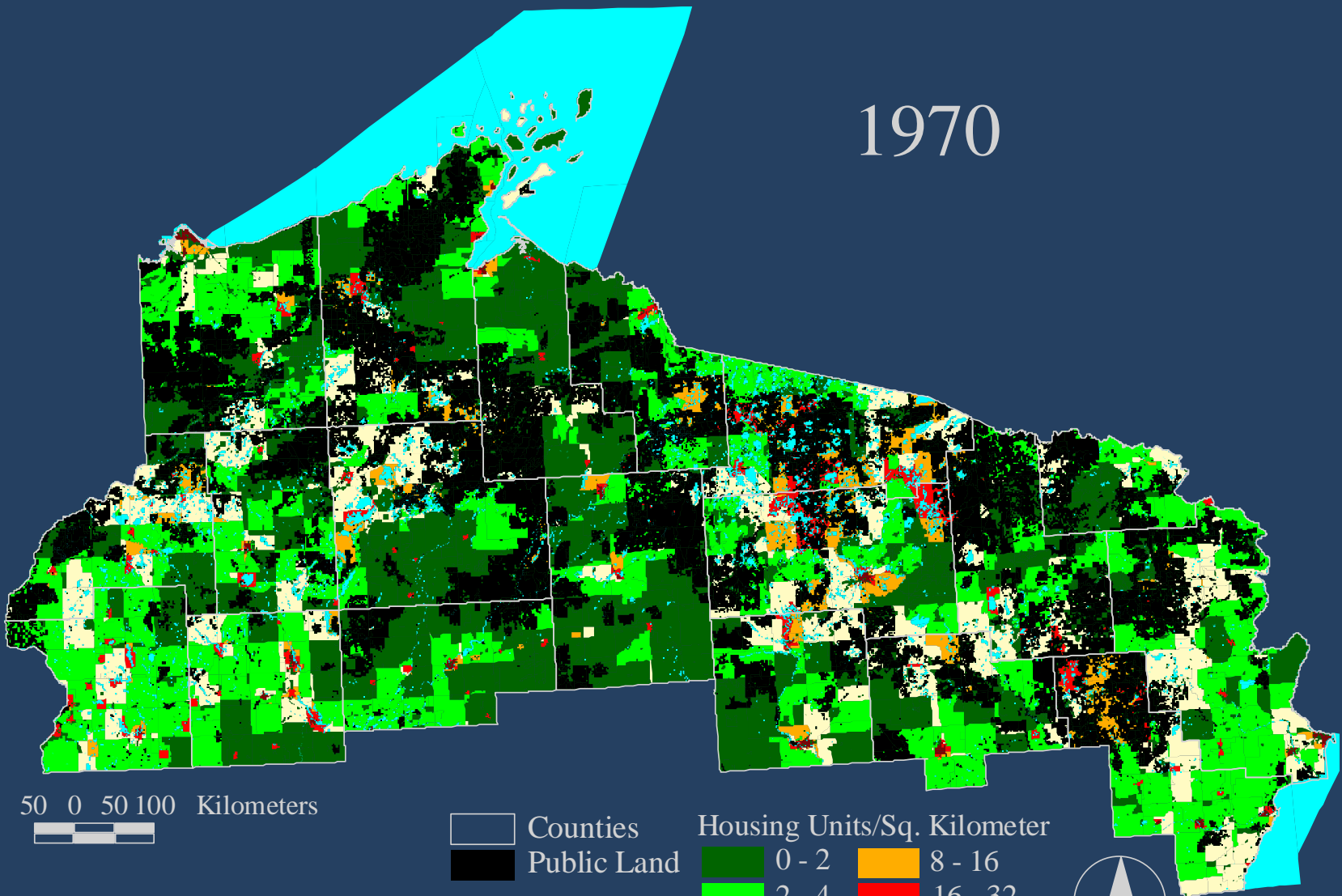
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# Population and Housing Growth in the North Woods

1970



50 0 50 100 Kilometers



Counties  
Public Land

Housing Units/Sq. Kilometer

0 - 2	8 - 16
2 - 4	16 - 32
4 - 8	> 32

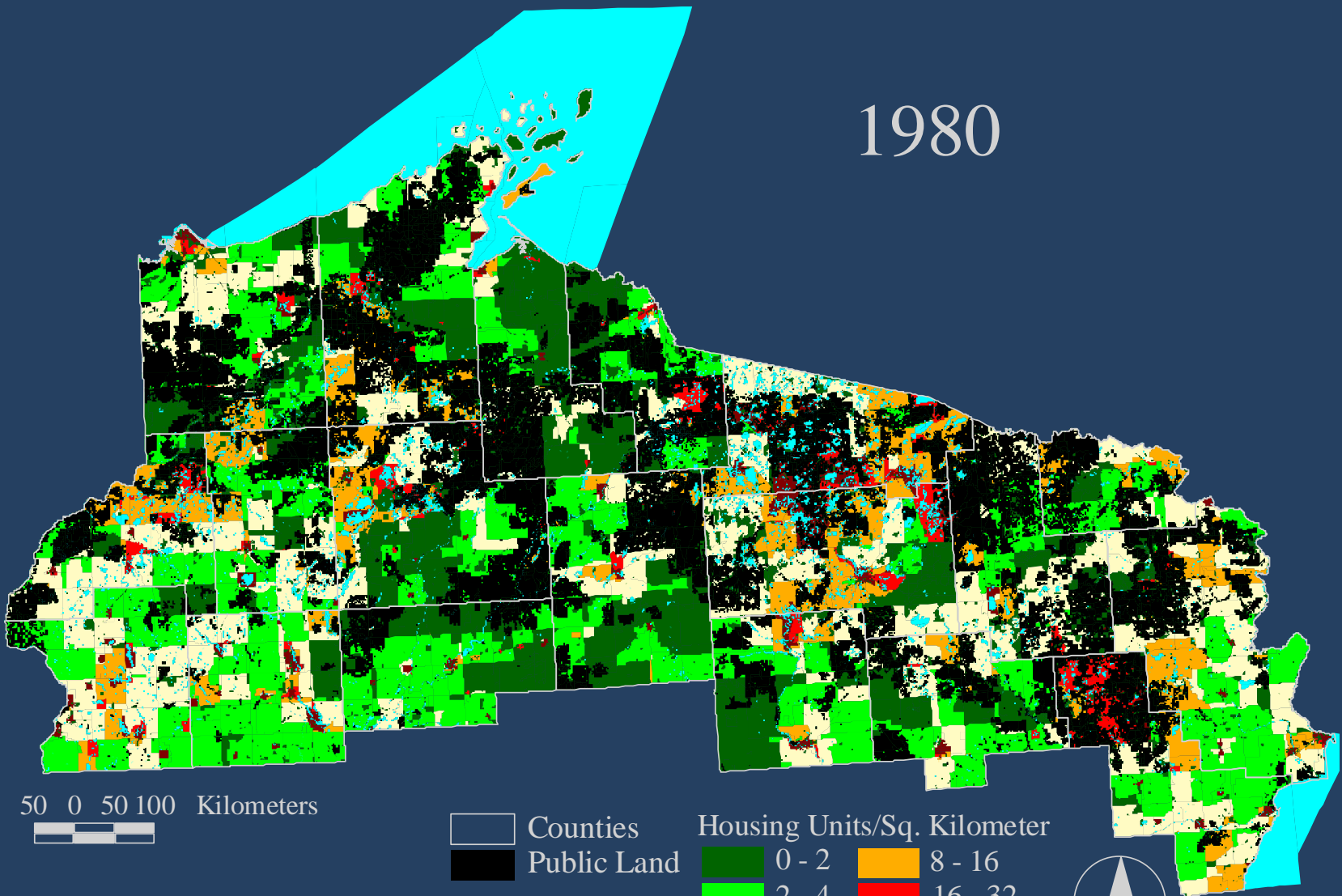


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# Population and Housing Growth in the North Woods

1980



50 0 50 100 Kilometers



Counties  
Public Land

Housing Units/Sq. Kilometer

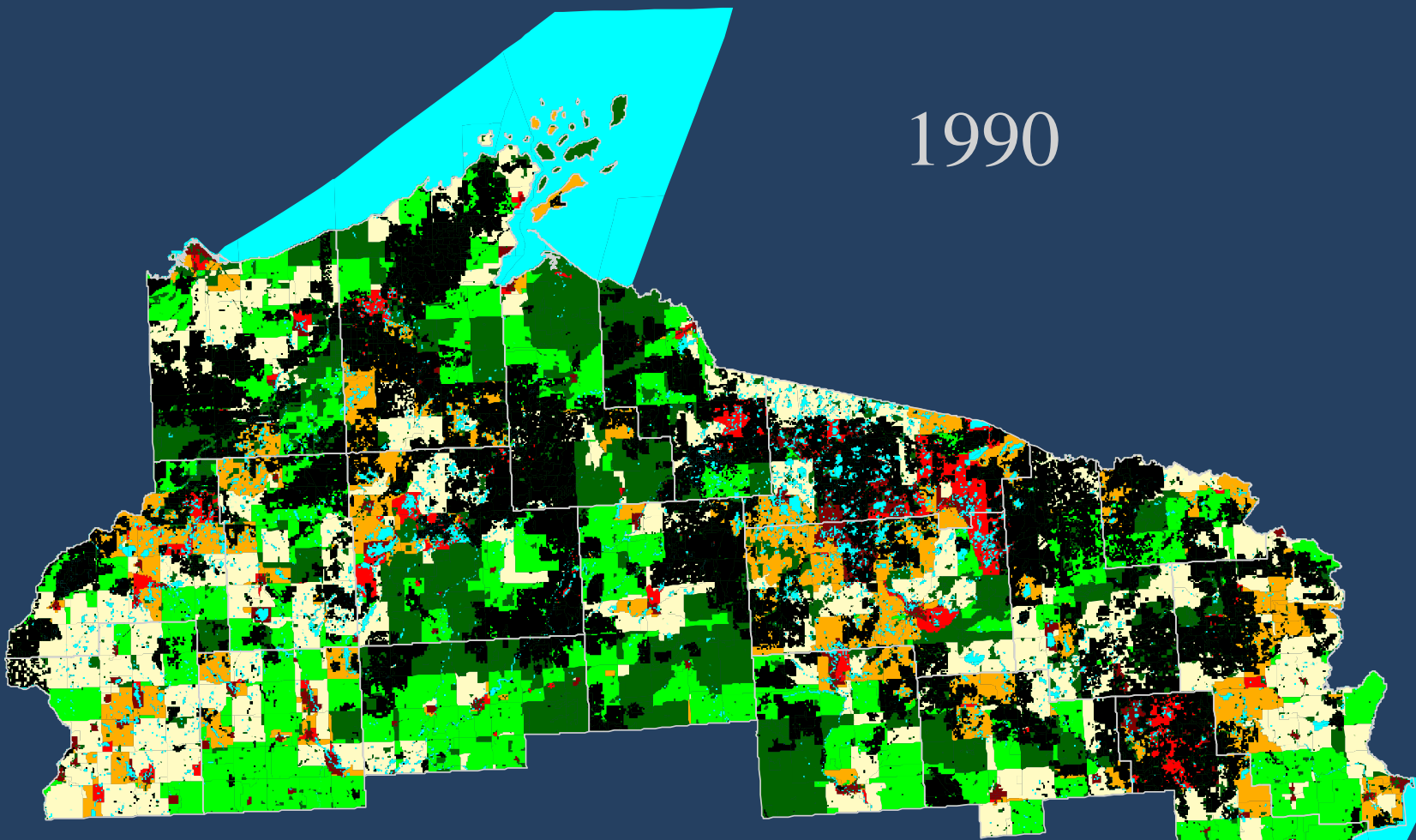
0 - 2	8 - 16
2 - 4	16 - 32
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# Population and Housing Growth in the North Woods

1990



50 0 50 100 Kilometers

Counties  
Public Land

Housing Units/Sq. Kilometer  
0 - 2  
2 - 4  
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> 32



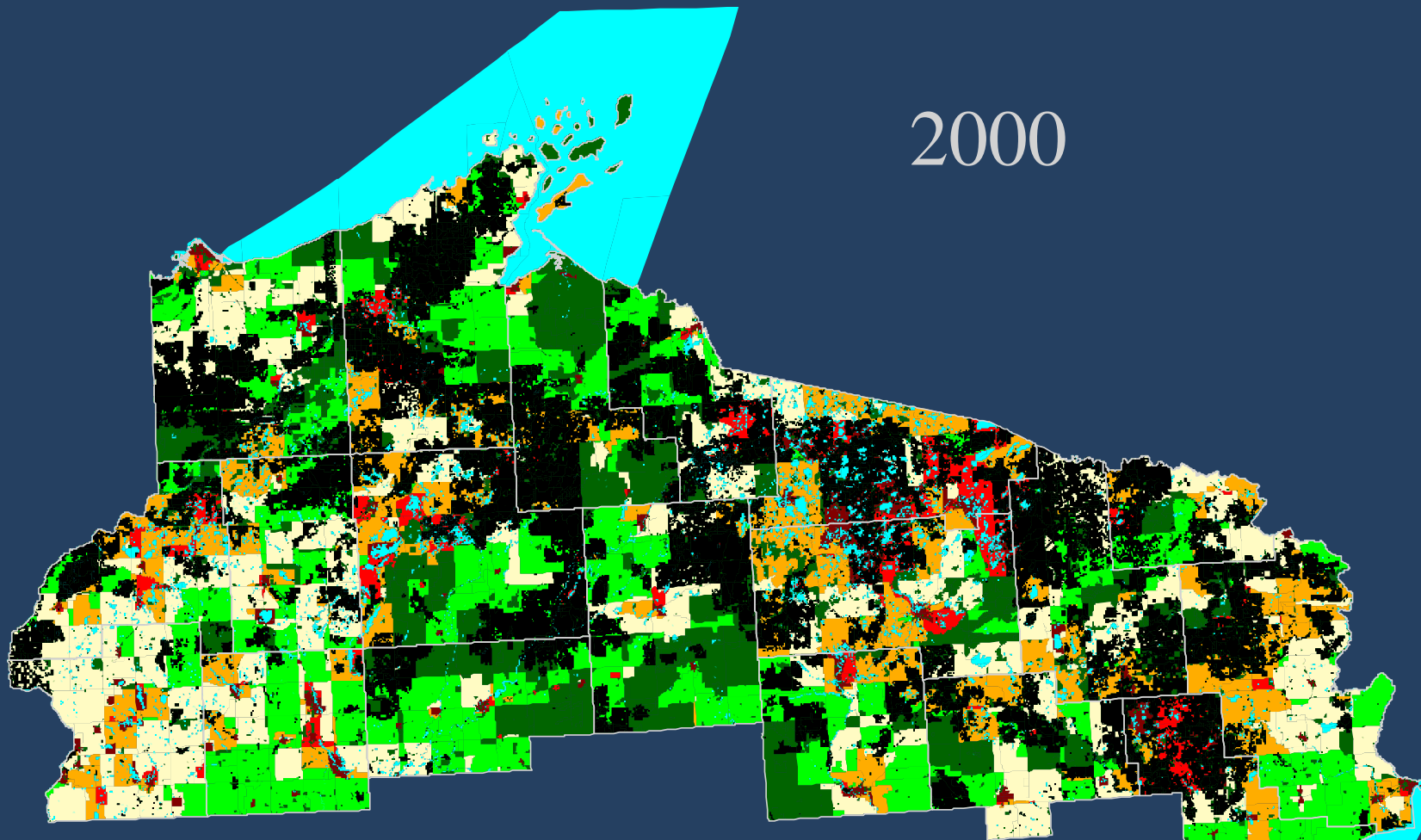
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# Population and Housing Growth in the North Woods

2000



50 0 50 100 Kilometers



Counties  
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Housing Units/Sq. Kilometer

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**QUESTIONS ?**