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### Public Preferences for Natural Resources: Evidence from Maine Ballot Initiatives

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#### Abstract

This paper examines public preferences for natural resource lands by exploring over a decade of ballot initiatives related to land management in Maine. Results of each ballot initiative are scrutinized to examine factors that significantly influenced voting outcomes and to compare and contrast outcomes over time, space, and type of proposed land management. Referenda in the sample include broad land conservation measures, calls for changes in forest management practices, and modifications to property tax and assessment of "working" natural resource lands. Results confirm strong spatial patterns in voting behavior in Maine, with higher support for land conservation measures in southern and coastal areas relative to eastern and northern areas. These spatial patterns may reflect variation in the benefits provided and costs imposed by the various land management initiatives. Empirical analysis suggests proximity or access to public goods provided by an initiative increases the likelihood of support. In contrast, proximity to perceived costs decreases the likelihood of support for an initiative.

Land conversion and land ownership change have increased the prominence of land management in natural resource, environmental, and community economic development policy discussions. In fast-growing urban and suburban areas, these changes to the landscape have inspired a diverse set of community discussions and management responses, ranging from open space and habitat preservation policies to education, safety, and traffic congestion policies to revisions of property tax rules. Similar discussions and management responses are ongoing in rural areas, with additional emphasis given to the implications of such changes on historically natural-resource based economies and traditional recreational uses of lands. Throughout the United States and Canada, communities are having parallel discussions, reflecting on the relative value of different characteristics of landscapes and pondering alternative future landscapes. Central to all of these discussions is the recognition of various externalities related to the use and management of lands.

This paper examines public preferences for natural resource lands by exploring over a decade of ballot initiatives related to land management in Maine. Results of each ballot initiative are scrutinized to examine factors that significantly influenced voting outcomes and to compare and contrast outcomes over time, space, and type of proposed land management. The empirical analysis focuses on variation in support for initiatives across 495 communities in Maine. Referenda in the sample include broad land conservation measures, calls for changes in forest management practices, and modifications to property tax and assessment of "working" natural resource lands.

Building on the approaches adopted by similar studies (e.g., Deacon and Shapiro 1975; Kline and Wichelns 1994; Romer and Rosenthal 1982; Rothstein 1994; Kline and

Wichelns 1998; Kotchen and Powers 2006), this paper combines ballot initiatives data with demographic, economic, and environmental data to explore public support for the various referenda. Unlike some of the recent studies that pool data on different ballot initiatives to detect broad trends (e.g., Kotchen and Powers 2006), this work focuses on within-state variation to a set of single initiatives.

A set of reduced form discrete choice models of the voting outcomes is derived, where the outcome is explained as a function of community attributes. Central to understanding the variation in voter support of initiatives are posited variation in access to the public goods provided by and costs imposed by the referenda. Emphasis is given to the spatial aspects of such variation. While some studies have mapped voting outcomes on land management referenda (Solecki et al. 2004; Kline 2001), few empirical analyses of voting behavior have explicitly addressed spatial heterogeneity or spatial dependence. This analysis is designed to inform Maine policy-makers of changing preferences for natural resources and help advance discussions of Maine's changing landscape. It is likely the lessons learned studying Maine will apply in other areas.

This analysis builds on the literature addressing voter support of land management and other natural resource and environmental management referenda. Early work completed by Deacon and Shapiro (1975) continues to provide the economic foundation of these studies. In completing their analysis of two California referenda that respectively authorized a coastal zone conservation program and a rapid transit program (BART), these authors employed city-level data to explain voting outcomes as a function of demographic characteristics, regional economic characteristics, and community attributes. Voter participation and response are both modeled explicitly. Several

explanatory variables were used to capture variation in tastes and preferences. They find that voters with higher levels of education, income, and more liberal political beliefs were more likely to support coastal zone conservation and rapid transit (BART). Employment in industries presumed to be negatively impacted by the public programs were used as approximate measures of income and employment effects. Lower levels of support for coastal conservation were found in areas with higher employment of laborers. Similarly, lower levels of support for rapid transit were found in areas with higher employment levels in the transport sector. Community attributes, such as location, area, and population density, were used to distinguish access to or level of the collective good provided by the two programs. Higher support for the coastal conservation program was found in southern areas with lower initial levels of environmental quality. Higher support for the rapid transit program was found in larger, more densely populated areas, where transit could be more efficient. The findings of this study provide evidence of self-interest when voting for public programs. This paper draws heavily from the basic economic intuition of this research, integrating their emphasis of the significance of variation in access to collective goods and income effects with recent developments in spatial analysis and geographic information systems (GIS).

Kline (2001) examines voter support for an Oregon ballot initiative designed to promote sustainable forestry practices and conserve forest ecosystems and, in turn, to modify forest practices, including restrictions on clearcut logging and herbicide and pesticide use. This research is partially motivated as an investigation of changing values related to forestlands and addresses the role of in-migration in diversifying attitudes towards forest management. Similar questions are now being voiced in Maine. Kline

(2001) employs county-level data to examine variation in voter support for this referendum and its associated forest management policies. The results are generally consistent with the previous findings of Deacon and Shapiro (1975), with higher support in areas with higher population densities, income, and educational attainment and lower support in areas with higher forest employment. This paper serves as an excellent model for our analysis of the response of Maine voters to forest management referenda. Results of our empirical analysis are expected to follow similar patterns.

Studies addressing voting responses to open space and farmland protection programs offer more mixed results. Kline and Wilchens (1994) examine voting responses to state-wide farmland preservation referenda in Pennsylvania and Rhode Island. Using county level data, the authors explain support for purchasable development right programs as a function of land use pattern (i.e., percent of county land in farmland, change in farmland acreage over last 5 years), agricultural profitability (reported change in market value of agricultural land over last 5 years), and growth pressures (percentage change in population over last 10 years; percentage change in housing values). Voting responses are explained using a reduced form model estimated by ordinary least squares. They determine that support for such programs is greater in areas with higher rates of population growth and housing value appreciation. Loss of farmland acreage drives support for such programs in Rhode Island but not in Pennsylvania. These results suggest that voters living in higher growth areas with less farmland may be willing to pay more to protect farmland at the margin, ceteris paribus. An interesting challenge faced by these researchers is how to incorporate past changes in the landscape and population attributes.

Solecki et al. (2004) employ municipal level data to explore voter support of a New Jersey referendum dedicating nearly a billion dollars for preservation of open space, farmland, wetlands, and historic sites. The authors employ principal components analyses to identify four factors based on demographic and landscape characteristics. Regression analysis is then completed to test the association between these factor scores and variation in voter support. An interesting conclusion of this study is the negative association between urban areas and voter support, suggesting these residents gain little from the collective goods provided by such land protection programs.

Kotchen and Powers (2006) employ a unique data set based on Trust for Public

Land summaries of votes throughout the United States related to open-space

conservation<sup>1</sup>. They conduct two types of empirical analysis - a national analysis,
including state, county, and local votes, and local analysis of votes in New Jersey and

Massachusetts. Unlike this paper which focuses on variation across communities in
response to a single vote, Kotchen and Powers (2006) make use of data where

communities are voting on distinct open space programs (e.g., multiple votes). The
national-scale pooled analysis reveals a preference for open space protection programs
funded by bonds rather than taxes and designed to preserve local farmlands. The
preference for farmland preservation is also supported in their local analysis of votes in
New Jersey. These authors strive to identify relationships between stock of open space
lands and rate of open space loss and voter support for open space protection. The results
of their Massachusetts analysis suggest higher support for protection programs when
stocks of open space are higher. Interestingly, both local studies show increasing support

for open space protection programs when modest open space loss has recently occurred but declining support once recent open space loss becomes large. The empirical work featured in this paper shares a similar goal to this study in improving understanding of the relationship between current landscape characteristics and support for land management programs.

This paper builds on the economic intuition and econometric methods of the aforementioned studies. The conceptual framework of this research and the details of the empirical analysis are presented in the subsequent sections.

#### **Conceptual Framework**

The conceptual framework adopted in this paper builds on the framework employed by Deacon and Shapiro (1975) to analyze voter response to two California referenda. Utility is presumed to be a function of consumption of private goods, x, and consumption of public goods, q. Utility maximizing behavior is assumed and presumed constrained by income, I. Different public programs, k, provide different levels of public goods (q) and impose distinct income (I), tax liabilities (T), and prices of private goods (p). An individual's maximization problem may be written as follows:

$$(1) \operatorname{Max}_{x^{i}} \mathbf{U}^{i}(x^{i}, q_{k}^{i}) + \lambda (I_{k}^{i} - T_{k}^{i} - p_{k}x^{i}) = V_{k}^{i} (q_{k}^{i}, p_{k}, I_{k}^{i} - T_{k}^{i}),$$

where i references the individual and k references the public program.

Under this framework, an individual voter is assumed to compare her utility with  $(V^i_1)$  and without the program  $(V^i_0)$  and vote for the program only if a higher level utility is achieved  $(V^i_1 > V^i_0)$ . An individual voter takes into account both the services received from the program and the cost of the program. Both of these attributes are expected to

vary across consumers because of, among other factors, variations in perceived benefits and costs. This variation is reflected in the maximization problem shown in (1), as numerous variables change across individuals under different programs. Central to this paper is the extent to which spatial variation in perceived benefits and costs may explain spatial patterns in voting responses. Lacking individual-scale data, this utility maximization problem is not directly modeled. Instead, this problem serves as the intuitive basis of an empirical model based on aggregate, community-scale voting data. While this paper embraces the conceptual framework outlined in Deacon and Shapiro (1975), the empirical analysis is a simplified and does not model voter turnout.

#### **Data on Maine Ballot Initiatives**

The natural resource ballot referenda studied here share a common focus of impacting Maine's landscape and the services it provides to Maine's people. There is considerable diversity across the type of lands targeted by the programs (i.e. public recreation lands or working waterfront areas) and the means of implementation (i.e. land purchase; conservation easements; management practices; or tax policies). Table 1 provides an overview of the thirteen natural resource referenda analyzed in this study. The sample includes referenda results from elections spanning 1987 to 2005<sup>2</sup>. Referenda are classified by the type of initiative, subject area of associated land management, and degree of aggregate voter support.

Appendix 1 includes thematic maps displaying the spatial variation in support for these referenda by county subdivision. All of the referenda summarized in table 1 propose policies or programs to alter attributes of Maine's landscape. In doing so, they

will concomitantly alter the provision of services (private and public goods) and influence the returns to land held in different uses and production opportunities. The maps of the votes display stronger support for public land protection (Votes 1, 2, 4, 8, and 12) in southern and coastal areas of Maine. These areas are less reliant on natural resource industries, have been experiencing higher rates of open space loss and land conversion, and generally have populations with higher income and educational attainment levels. A somewhat similar pattern emerges on the votes related to forest management (Votes 5, 6, 7, and 10), with less support in northern areas, where forest-based industries play a larger role in local economies. Support for the current use taxation programs aimed at reducing the property tax rates levied on coastal lands also exhibits a strong spatial pattern, with support lessening as you move inland from the coastal areas (Votes 11 and 13).

#### **Empirical Analysis**

The empirical analysis focuses on a subset of the votes summarized in table 1. Eleven votes are classified into three groups mentioned above: public land protection (Votes 1, 2, 4, 8, and 12); restrictions on forest practices (Votes 7 and 10) and current use taxation of working waterfront lands (Votes 11 and 13).

Data

Table 2 presents descriptive statistics for these voting outcomes and the explanatory variables used to explain the variation in support. These statistics are based on county subdivision or community-scale data (n=495). All of the voting data were obtained from the Maine Bureau of Corporations, Elections, and Commissions. The PROPYES

variables represent the proportion of supporting votes by community across the thirteen votes summarized in table 1. Higher mean levels of support are observed for the public land protection (Votes 1, 8, and 12) and waterfront current use taxation programs (Votes 11 and 13). Lower mean levels of support exist for referenda calling for support of natural resource industries (Vote 3) and for restrictions on forest harvesting practices (Votes 5, 6, 7, and 10).

Percentage of land cover in agriculture (PAG) and forest (PFOR) by community are based on analysis of the Maine GAP coverage and represent approximately 1991 conditions. These variables are proxies for undeveloped lands and may capture the variation across communities in terms of stocks of lands affected by the various natural resource referenda. A higher stock of these lands could generate higher support because of greater access to the benefits of the programs supported by these referenda. Alternatively, a higher stock of these lands could generate lower support because of concentrated income and employment effects due to changes in land use or land management (e.g., discouragement of resource extraction).

Distance to the coast (DCOAST) is measured in kilometers. This variable is expected to capture variation in access to the public goods provided by the working waterfront current use taxation programs. Less support for these programs is expected as distance to the coast increases.

The various DCLAND variables represent the distance to the nearest conservation land measured in kilometers. This value is updated over time as the stock of conservation land grows in Maine. These data are based on a GIS coverage of conservation lands maintained by the Maine Office of GIS. The increasing stock of

conservation lands is reflected in the descriptive statistics, as the mean distance value falls over time. This variable serves as a proxy for familiarity and access to the public goods provided by the land protection programs. Less support is expected for the land protection programs as distance to conservation land rises.

Distance to Churchill Dam (DCHDAM) is measured in kilometers. This variable is included in the regression analysis of VOTE 2 because the referendum included funding to replace this dam. Less support is expected in communities located further away from this dam.

Population density (POPDENS) is evaluated in 1990 and 2000 based on US

Census of Population and Housing data and is measured as population per square mile.

This variable is used to distinguish rural and urban communities. The expected sign of the parameter associated with this variable is unclear.

Income (MEDINC) is represented using median income values for 1990 and 2000 also from the US Census of Population and Housing. These values have been scaled by dividing by \$10,000. Previous studies (Deacon and Shapiro 1975; Kline 2001) have shown higher support for referenda protecting natural resources in higher income communities. This same trend is expected in this analysis.

Percentage of employment in natural resource-based industries (agriculture, forestry, and fishing occupations) is assessed for 1990 and 2000 using Census of Population and Housing data. A negative relationship is expected between this variable and support for referenda that restrict land management options, as higher income and employment effects are expected in these communities.

Separate regression analyses are completed for the different votes. The same

basic, parsimonious specification serves as the basis for all specifications. Minor adjustments are made to acknowledge differences in the referenda questions. A logit model is estimated using maximum likelihood methods, recognizing the grouped nature of the elections data (Greene 2003, pp. 686-689). This empirical framework recognizes that election results take the form of proportions and the number of voters varies widely across communities.

#### Empirical Results

Tables 3, 4, and 5 present the parameter estimates and p-values for the group logit models. Votes are grouped into three subject areas: public land acquisition and protection, forest practices, and current use taxation of working waterfront lands. An exhaustive summary of these results is beyond the scope of this paper. Important findings are reviewed, especially connections between these results and spatial patterns in voting behavior.

Examination of the results of the land acquisition and protection referenda (table 3) reveals some interesting patterns in these votes over time. Less support is found in areas with higher amounts of agriculture (PAG) and forest lands (PFOR) in 3 of the 5 votes, suggesting residents in these areas may perceive the costs of this program to be higher. Less support is also found in communities located further away from public conservation lands (DCLAND) in 4 of the 5 votes. This may support the hypothesis that proximity to these lands increases voters' familiarity and access to the public goods offered by this public program. Higher population density (POPDENS) and median incomes (MEDINC) result in higher support for the referendum in 5 of the 5 votes.

natural resource employment (NREMP) result in lower levels of support in 4 of the 5 votes, suggesting residents of these communities recognize the employment impacts of such programs.

The results of the forest practices referenda (table 4) also reveal some interesting patterns in voting behavior over time. These referenda proposed restrictions on forest harvest practices. Less support is found in areas with greater amounts of forest lands (PFOR), suggesting residents in these areas may perceive the costs of this program to be higher. Higher population density (POPDENS) and median incomes (MEDINC) result in higher support for the referenda. These parameters may be capturing variation in tastes and preferences. Higher levels of natural resource employment (NREMP) result in lower levels of support, suggesting residents of these communities recognize the employment impacts of such programs.

The results of the current use taxation referenda (table 5) confirm similar patterns in voting behavior over time. These referenda proposed reductions in property taxes for working waterfront lands. Less support is found in areas with greater amounts of agriculture (PAG) and forest lands (PFOR). Less support is also found in areas located further from the coast (DCOAST). Higher median incomes (MEDINC) result in higher support for the referenda. This parameter may be capturing variation in tastes and preferences.

### Conclusions

The results of this analysis provide systematic explanations for the spatial patterns in voting behavior observed on Maine natural resource referenda. Visual review and regression analysis of the votes suggests spatial variation in perceived benefits and costs

explains the spatial variation in voter support on these referenda. The results displayed in this paper are preliminary. Future research is planned to refine the design and analysis of these empirical models, including modifying the empirical regression model to account for spatial dependence among the error terms.

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<sup>&</sup>lt;sup>1</sup> Visit the Trust for Public Land's website (www.tpl.org) and examine the Center for Conservation Finance's LandVote database and publications.

<sup>2</sup> The term referenda is used here in an inclusive sense, incorporating votes on bond initiatives, citizen-initiated laws, and constitutional amendments.

Table 1. Natural Resource Referenda - Maine (1990-2005)

				Percentage
Vote	Year	Type	Subject	of
voie	vote Tear	Type	Subject	Supporting
				(YES) Votes
1	1987	Bond Issue	Purchase of Public Lands to Provide Access to	65
			Maine's People (\$35,000,000 over 4 years; Land	
			for Maine's Future)	
2	1990	Bond Issue	Purchase of Public Lands to Provide Access to	42
			Maine's People and for construction to replace	
			Churchill Dam (\$19,000,000; Land for Maine's	
			Future)	
3	1991	Bond Issue	Providing Financial Assistance to Maine's natural	37
			resource and other industries for job retention and	
			job creation (\$7,500,000)	
4	1991	Bond Issue	Purchase of outstanding recreational and scenic	43
			lands, wildlife habitat conservation, and increasing	
			public access for Maine's people (\$5,000,000;	
			Land for Maine's Future)	
5	1996	Citizen-	Ban Clear Cutting and Set Other New Logging	29
		Initiated	Standards	
		Referenda		
6	1996	Citizen-	Compact for Maine's Forests to Become Law to	47
		Initiated	Promote Sustainable Forest Management Practices	
		Referenda		

				Percentage
<b>T</b> 7 4	<b>T</b> 7	T.		of
Vote	Year	Type	Subject	Supporting
				(YES) Votes
7	1997	Citizen	Implement the Compact for Maine's Forest to	47
		Initiated	Promote Sustainable Forest Management Practices	
		Referenda		
8	1999	Bond Issue	Purchase public lands and easements from willing	69
			sellers for conservation, water access, outdoor	
			recreation, wildlife and fish habitat, and farmland	
			(\$50,000,000; Land for Maine's Future)	
9	1999	Constitutional	Allow for reduced property taxes on property	55
		Amendment	maintained for historic preservation or for scenic	
			views	
10	2000	Citizen	Require Landowners to Obtain a Permit for All	28
		Initiated	Clear-Cuts and Defining Cutting Levels for Lands	
		Referenda	subject to the Tree Growth Law	
11	2000	Constitutional	Provide for the assessment of land used for	50
		Amendment	commercial fishing activities based on current use	
12	2005	Bond Issue	Purchase land and conservation easements from	65
			willing sellers for conservation, water access,	
			wildlife and fish habitat, outdoor recreation, and	
			working waterfront preservation (\$12,000,000;	
			Land for Maine's Future)	

				Percentage	
Vote	Year	Type	Subject	of	
Voic	1 car	Type Subject	Subject	Supporting	
				(YES) Votes	
13	2005	Constitutional	Permit waterfront land used for commercial	72	
		Amendment	fishing activities to be assessed based on current		
			use similar to treatment now available for farms,		
			open space, and forestland		

 Table 2. Descriptive Statistics for Referenda Votes and Explanatory Variables

		Std		
Variable	Mean	Dev	Minimum	Maximum
PROPYES_VOTE1	0.60	0.08	0.10	0.83
PROPYES_VOTE2	0.41	0.07	0.09	0.69
PROPYES_VOTE3	0.34	0.08	0.02	0.64
PROPYES_VOTE4	0.39	0.09	0.00	0.87
PROPYES_VOTE5	0.25	0.09	0.00	0.60
PROPYES_VOTE6	0.43	0.11	0.00	0.81
PROPYES_VOTE7	0.39	0.14	0.04	0.77
PROPYES_VOTE8	0.60	0.13	0.00	0.88
PROPYES_VOTE9	0.51	0.09	0.00	1.00
PROPYES_VOTE10	0.22	0.09	0.00	0.79
PROPYES_VOTE11	0.44	0.11	0.08	0.91
PROPYES_VOTE12	0.61	0.10	0.11	1.00
PROPYES_VOTE13	0.68	0.10	0.08	1.00
PAG	12.97	10.38	0.00	61.98
PFOR	67.84	14.18	11.11	96.82
DCOAST	49.40	58.42	0.00	243.37
DCLAND_90	4.62	3.58	0.00	21.47
DCLAND_91	4.62	3.58	0.00	21.47
DCLAND_96	4.60	3.57	0.00	21.47
DCLAND_97	4.60	3.57	0.00	21.47

		Std			
Variable	Mean	Dev	Minimum	Maximum	
DCLAND_99	4.52	3.53	0.00	21.47	
DCLAND_00	4.51	3.53	0.00	21.47	
DCLAND_04	4.33	3.46	0.00	21.47	
DCHDAM	214.02	71.87	60.24	392.95	
POPDENS_00	83.25	174.21	0.30	1630.55	
MEDINC_00	3.47	0.88	1.50	8.59	
NREMP_00	6.77	8.10	0.00	60.00	
POPDENS_90	80.45	173.27	0.28	1619.30	
MEDINC_90	2.56	0.63	0.75	5.02	
NREMP_90	8.93	8.72	0.00	75.00	

Table 3. Maine Public Land Acquisition and Protection Referenda Results (Land for Maine's Future)

	Vote 1		Vote 2		Vote 4		Vote 8		Vote 12	
								Pr >		Pr >
	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq	Estimate	ChiSq	Estimate	ChiSq
Intercept	0.6717	<.0001	-0.0724	0.0512	-0.6069	<.0001	0.09	0.0277	0.58	<.0001
PAG	-0.00005	0.907	-0.00359	<.0001	0.000256	0.5135	0.00406	<.0001	-0.00448	<.0001
PFOR	-0.00359	<.0001	0.00208	<.0001	0.000721	0.0597	0.00177	<.0001	-0.00341	<.0001
DCOAST	-0.00128	<.0001	-0.0021	<.0001	-0.00168	<.0001	-0.00257	<.0001	-0.00063	<.0001
DCLAND	-0.0212	<.0001	-0.00283	0.0024	0.00273	0.0098	-0.0238	<.0001	-0.0183	<.0001
POPDENS	0.000177	<.0001	0.000143	<.0001	0.000145	<.0001	0.00039	<.0001	0.00016	<.0001
MEDINC	0.0828	<.0001	0.0157	0.0177	0.0944	<.0001	0.2096	<.0001	0.0939	<.0001
NREMP	-0.00342	<.0001	-0.00252	0.0008	-0.00015	0.8626	-0.00696	<.0001	-0.00449	<.0001
DCHDAM			-0.00128	<.0001						

**Table 4. Maine Forest Practices Referenda Results** 

Vote 7				
	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq
Intercept	-1.0015	<.0001	-0.6966	<.0001
PAG	0.00122	0.0027	0.000281	0.4061
PFOR	-0.00268	<.0001	-0.00742	<.0001
DCOAST	0.00239	<.0001	-0.0324	<.0001
DCLAND	-0.0114	<.0001	-0.00398	<.0001
POPDENS	0.00029	<.0001	0.000213	<.0001
MEDINC	0.3438	<.0001	0.0879	<.0001
NREMP	-0.0174	<.0001	-0.00393	<.0001

**Table 5. Maine Working Waterfront Current Use Taxation Referenda Results** 

	Vote 11		Vote 13	
	Estimate	Pr > ChiSq	Estimate	Pr > ChiSq
Intercept	-0.2465	<.0001	0.7083	<.0001
PAG	-0.00314	<.0001	-0.00497	<.0001
PFOR	-0.00341	<.0001	-0.00308	<.0001
DCOAST	-0.0253	<.0001	-0.00188	<.0001
DCLAND	-0.0025	<.0001	-0.0173	<.0001
POPDENS	0.000118	<.0001	0.000026	0.1763
MEDINC	0.1562	<.0001	0.1523	<.0001
NREMP	0.00635	<.0001	0.00195	0.1009

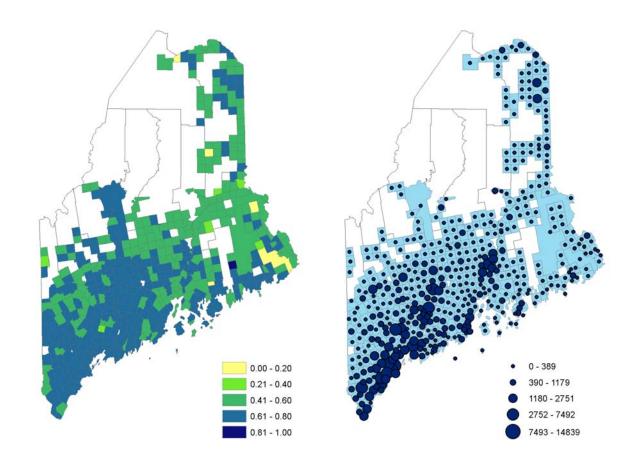
### **Appendix**

All of the votes are displayed in a similar fashion. These images do not show information describing all votes cast in the election. Votes are displayed for the 495 US Census Bureau county subdivisions (e.g., cities, towns, plantations, unorganized territories) included in the empirical sample.

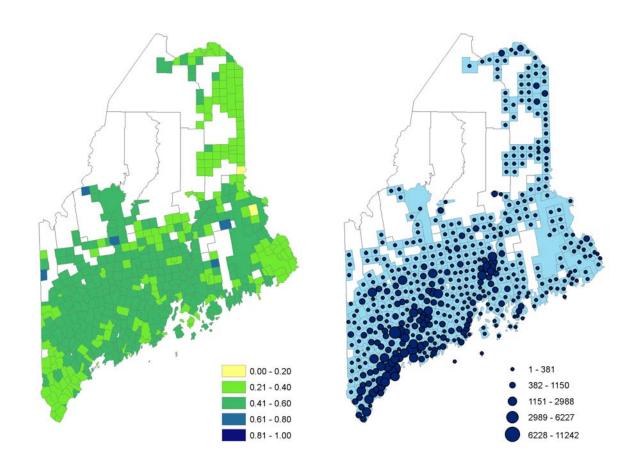
The left-hand image (thematic map) displays the proportion of supporting (YES) votes by county subdivision. The same color scale is used for all images - yellow indicates the lowest level of support (0-0.20); fluorescent green represents the second level of support (0.21-0.40); forest green represents the third level of support (0.41-0.60); medium-blue represents the fourth highest level of support (0.61-0.80); and navy-blue represents the highest level of support (0.81-1).

The right-hand image (graduated symbols) displays the absolute number of supporting (YES) votes by county subdivision. A larger symbol indicates higher amounts of supporting votes. A natural breaks classification is used to divide each vote into 5 classes. This scale is not standardized across votes, as the number of votes varies widely across elections.

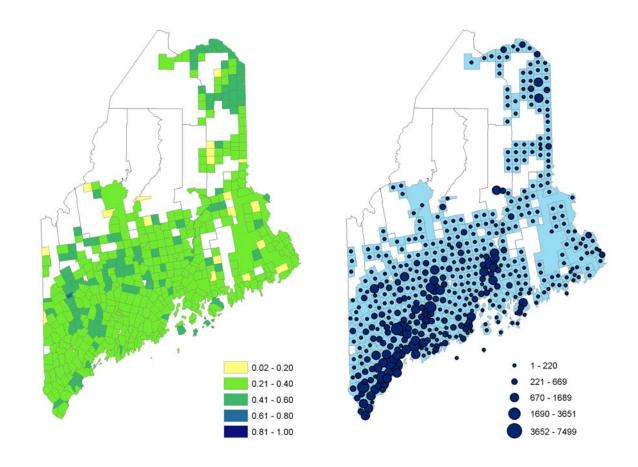
### Land for Maine's Future Bond (\$35,000,000) - 1987 (Vote 1)



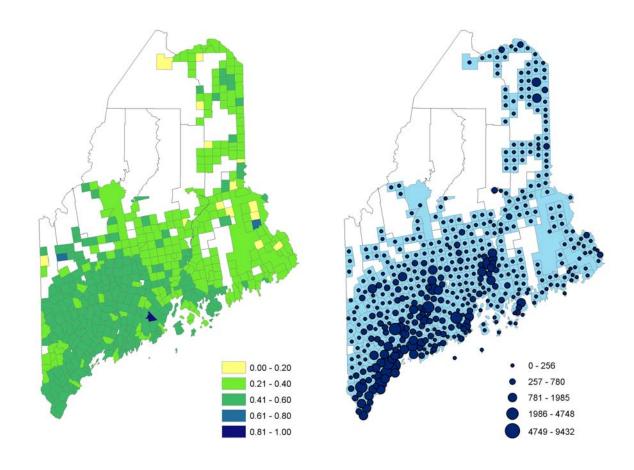
## Land for Maine's Future and Replacement of Churchill Dam Bond Issue (\$19,000,000) - 1990 (Vote 2)



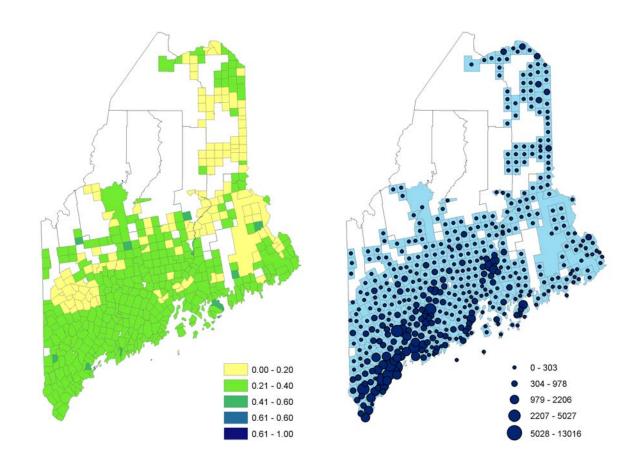
Financial Assistance to Maine's Natural Resource Industries Bond Issue (\$7,500,000) - 1991 (Vote 3)



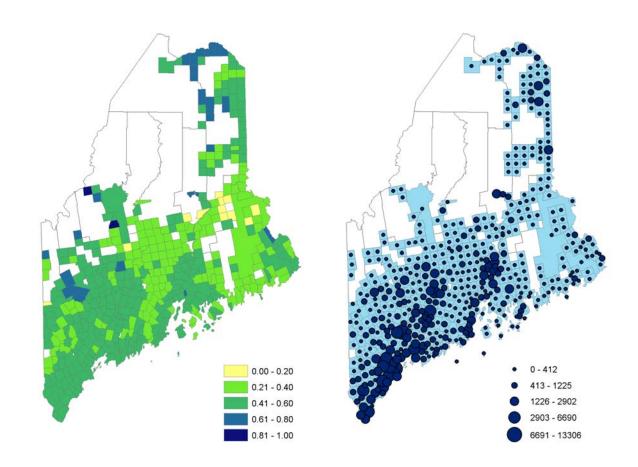
### Land for Maine's Future Bond Issue (\$10,000,000) - 1991 (Vote 4)



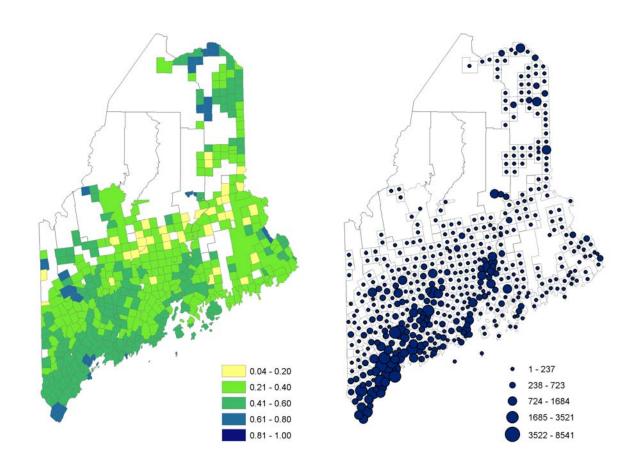
### Ban of Clearcutting and Setting of Other New Logging Standards - 1996 (Vote 5)



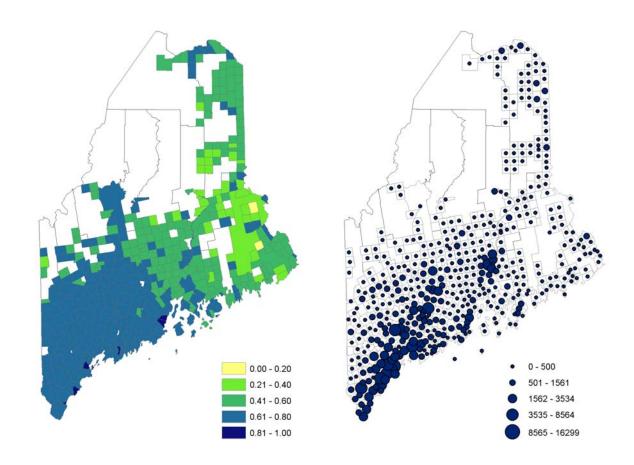
Compact for Maine's Forest to become law to promote sustainable forest management practices - 1996 (Vote 6)



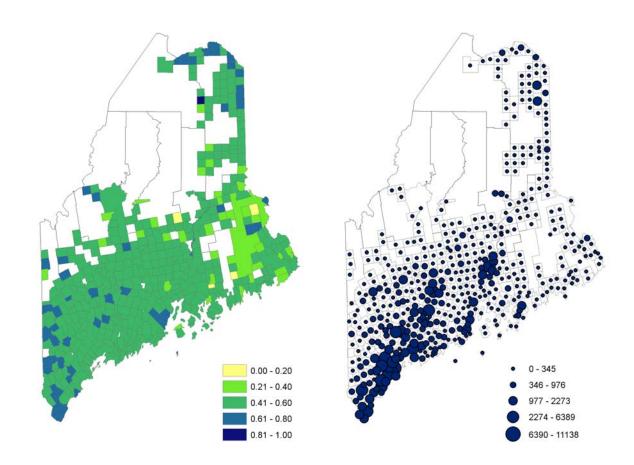
## Compact for Maine's Forest to become law to promote sustainable forest management practices - 1997 (Vote 7)



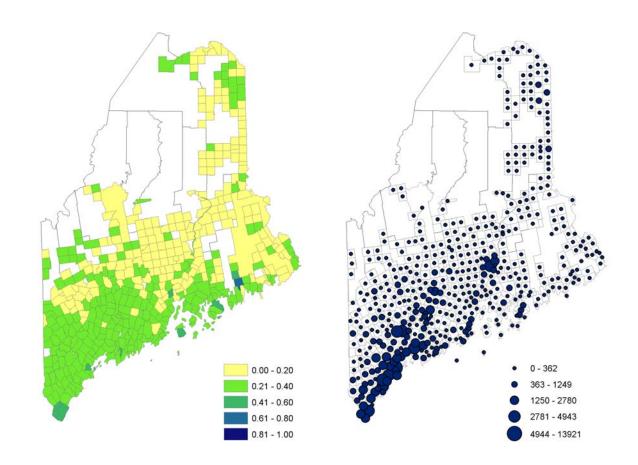
### Land for Maine's Future Bonding Issue (\$50,000,000) - 1999 (Vote 8)



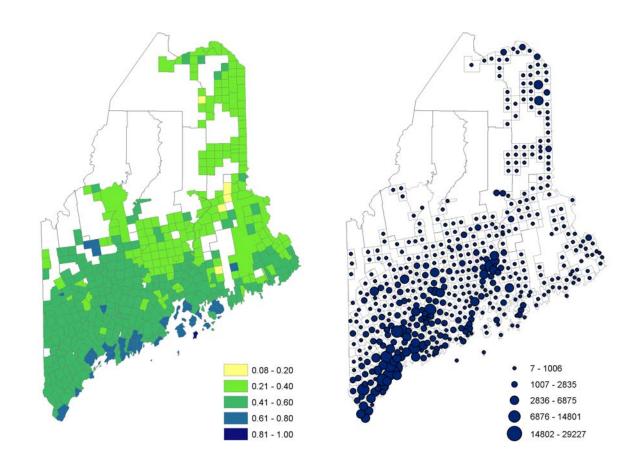
### Reduced Property Taxes on Property Maintained for Historic Preservation or Scenic Vistas - 1999 (Vote 9)



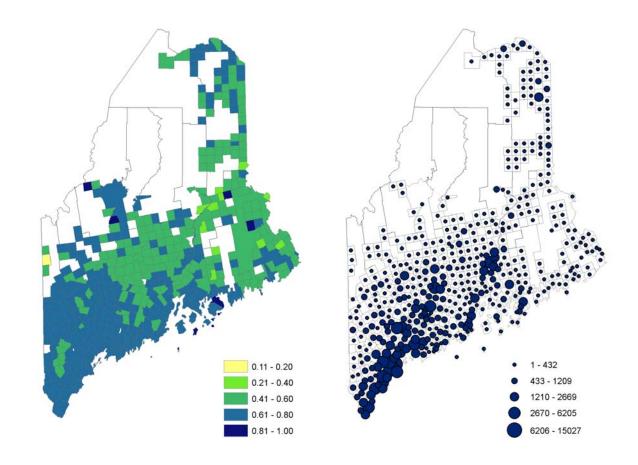
## Requiring Landowners to Obtain a Permit for All Clear-cuts and Defining Cutting Levels for Lands subject to the Tree Growth Law - 2000 (Vote 10)



# Assessment of Land Used for Commercial Fishing Activities Based on Current Use - 2000 (Vote 11)



### Land for Maine's Future Bond Issue (\$12,000,000) - 2005 (Vote 12)



## Permit Waterfront Land Used for Commercial Fishing Activities to be Assessed Based on Current Use Similar to Farms, Open Space, and Forestland - 2005 (Vote 13)

