

5 March 2000

Mr. Robert Durand
Secretary, EOE
100 Cambridge Street, 20th floor
Boston, MA 02202

Dear Bob,

It is my pleasure to deliver to you the enclosed final version of your Vision for Massachusetts Forests. It is the product of much creative thought, deliberation, and cooperation on the part of your 13-member Forest Vision Team. As you will recall, our original charge was articulated on p.9 of "Thinking in Forest Time", and we specifically focused on the following three attributes of a Forest Vision: statement of the Current Conditions of MA forests, statement of a set of Desired Future Conditions, and a list of Recommendations of how to achieve those Future Conditions. On behalf of your Forest Vision Team, I am delighted to deliver the following:

1. A description of Current and Desired Future Conditions (1.5 pages)
2. a more extensive 4-page version of Current and Desired Future Conditions
2. A list of prioritized Recommendations to achieve the Desired Future Conditions (6 pages)
3. A Recommendations summary (1 page)
4. A list of original Recommendations generated by the Vision Team (16 pages).

As you will see, the overwhelmingly most important Recommendation, as ranked by the Vision Team, was aggressive forest protection via both acquisition of conservation restrictions and fee simple purchase. Such protection would be strategic, occurring in a landscape-level context, and flexible, occurring over multi-year time periods, and working in partnership with private, non-profit conservation organizations.

Also ranked in the top 5 were:

2. Establishment of an Ecological Network that focuses on large forest areas, major corridors, areas of significance for the conservation of biodiversity, cultural and nature retreat educational centers, trail systems, and ecological enhancement zones for transportation corridors;

3. Evaluate and re-organize the bureaucratic structure of state agencies responsible for forest protection and management within the Commonwealth. The current structure and segmented perspectives on game, forest management, water, and non-game/biodiversity are not conducive to the proactive and holistic attention that needs to be paid to forests, both state-owned, and more importantly, those in private hands, which comprise 78% of all forests in Massachusetts;

4. Conduct a comprehensive inventory/assessment effort to identify and map large forest areas, major wildlife and water protection corridors, ecological enhancement zones along transportation corridors, and recreation trails and nature education centers. This recommendation enables pursuit of Recommendation 2, described above.

5. Current-use property taxation of private forestland is comprehensively studied and overhauled, resulting in a system that makes private ownership of forestland an attractive and effective alternative to development for owners. Such a program would provide a significant reward for the stewardship of land, in return for the wealth of benefits such ownership and management unselfishly provide to all Massachusetts residents.

Thank you very much for the opportunity to participate in this exciting process. It is heartening indeed to have such interest in Massachusetts forests expressed by the highest environmental leader in state government. I hope you find these recommendations, and all aspects of your Forest Vision, useful for subsequent planning and action within EOE. If you have any questions about the process or products, please do not hesitate to contact me. I welcome the opportunity to work with you towards making the suite of Desired Future Conditions for our forests a reality.

Sincerely,

David B. Kittredge, Jr.
Associate Professor/ Extension Forester

Cc: Secretary's Forest Vision Team

Current conditions of Massachusetts forests:

Massachusetts is a forested land. In spite of the fact that our state is the third most densely populated in the nation, roughly 65% of our state is wooded. In many communities, as much as 80-90% of the land is dominated by trees. Most of this forest has naturally returned following agricultural abandonment or other major disturbance. As a result, there is little very old or very young forest. Likewise, there are very few large blocks of forest not interrupted by roads or other human uses. This blanket of Massachusetts's forest extends beyond the borders of the Commonwealth, and makes us a part of a greater wooded northeastern region. Although forest land has increased in Massachusetts in the last century, the tide has turned and forest is being permanently lost to development- a symptom of our high population and relative affluence. The vast Massachusetts forest is vulnerable to this fate, since 75% of it is owned by hundreds of thousands of different private families and individuals. The average ownership is small (ca. 10 acres), resulting in a vast patchwork quilt of many small pieces that collectively make up the greater forest we see each day. The individual and independent actions of these owners influence the fate of the forest that benefits the entire citizenry of the Commonwealth. Our impressive landscape of trees ensures a dependable supply of clean water, numerous opportunities for recreation and education, a source of cultural, historic, and spiritual inspiration, a buffer from increasing development, a diversity of flora and fauna, and a sustainable supply of wood products, on which we all depend. The woods of Massachusetts are an integral part of our daily lives, supplying invaluable benefits that we all directly or indirectly enjoy.

The steady urbanization of Massachusetts has resulted in a citizenry that lives predominantly in a developed environment, and is relatively unaware of the wealth of benefits provided by forests, and the ways that careful stewardship can enhance those benefits. Management of forests is often considered incompatible with environmental protection by owners, and the citizenry at large. Although wood is often harvested from many private lands, there is relatively little that is under long-term management. In the absence of such guidance and long-term perspective, harvesting can maximize short-term profit at the expense of future wood value production. Wood from Massachusetts's forests has great potential to more significantly meet local needs, contribute to local economies, and enter the global marketplace. Furthermore, forests and their future are not a high priority among key leadership in the public, private, and nonprofit sectors. Given the importance of forests, we have an acute paucity of information about its status and health upon which to make informed management and protection decisions. Cooperation among state and local agencies responsible for management and protection of forests is weak. There is almost no emphasis placed on the provision of advice, assistance, and encouragement to the population of private owners, on whose forest stewardship we all depend.

Desired Future Conditions:

Massachusetts is a forested land. Woods are appreciated and protected from random, unplanned development by the strategic application of conservation restrictions on private land and acquisition by state, local, and private conservation organizations that all cooperate towards the same goal. Private and public forest fit together to form an integrated spatial network that continues to provide the impressive suite of benefits upon which we have all grown to depend. Such a network is widely recognized and supported by all residents, and indeed serves as a model of permanent forest benefits linked to the public, which is progressively recognized and emulated by other states and nations. Large blocks of forest are valued and protected for their biological and scenic benefits, as well as areas in which to focus wood production. There is a better overall balance of ages, structures, and conditions, with more younger and older woods, which provide a

greater diversity of habitats. All native biotic elements and natural ecosystem processes are present and functioning at appropriate spatial and temporal scales. The wealth of social benefits is produced sustainably without degrading the ecological structure and function of the forest.

Forests are understood and appreciated by all to be critically important sources of the wealth of benefits we all enjoy and rely upon. Woodland owners are well educated about the highest and best uses of their land, and with professional advice, make informed judicious decisions about its fate. Private owners are rewarded for the generous and sustainable provision of public benefits from their lands through supportive incentives for future stewardship. The state provides a leadership role in promoting the value of forests, both through its policies and actions on public lands. Public and private managers and owners cooperate across property boundaries in management and protection, while respecting ownership rights. Ecological and management information is shared freely between managers and owners thereby facilitating informed decisions about forest stewardship in a broader ecosystem, watershed, and habitat context. Municipalities, land trusts, and other organizations play a strong role in protecting and managing woodland. Such management is sensitive to ecological and cultural needs. Comprehensive and timely monitoring of forests provides managers, owners, and the public with current information with which to make wise decisions. Sustainable forest practices are applied on all lands that enhance their long-term value and stream of continuous benefits. With its wealth of forest, and enlightened approach towards its stewardship, Massachusetts is the envy of states and nations the world over.

Current state of Massachusetts forests

1. Contributions to MA citizenry

Through its extensive distribution and diversity, MA forests provide citizens with an overall high quality of life through: noise and pollution buffers from an increasingly developed landscape, abundant source of clean air and water, scenic backdrop to a tourism industry, numerous outdoor recreation opportunities, cultural and historic significance, wood products, opportunities for employment and attendant economic multipliers, and locations for education and research. These numerous benefits are dependent on or enhanced by the overall biodiversity of the forest, and its resulting ability to be resilient in the face of disturbance. The resiliency depends not only on a diversity of species, communities, and genetics, but a robust set of ecosystem functions such as hydrologic and nutrient cycling and carbon sequestration.

2. Extent

The 3.25 million acres of forest present today represent 65% of the land in Massachusetts. After more than a century of increasing forest area following an historic period of agricultural land use and abandonment, open space, most of which is forested, is now being permanently lost to development at an estimated rate of 44 acres every day. This loss is especially acute in the CT River Valley, eastern MA, and the Cape. It is remarkable that Massachusetts has as much forest as it does, since it is the third most densely populated state in the Nation.

3. Ownership

This vast landscape of forest is vulnerable to development since approximately 75% of it is owned by over 235,000 non-industrial private families, individuals, and organizations. The average ownership is 11 acres, and 85% of all ownerships are less than 10 acres, representing 12% of the land. For parcels larger than 10 acres, the average size is 71 acres. The trend is of parcelization of the forested landscape, whereby land is divided up into smaller and smaller pieces, controlled by a growing number of individuals. These owners often do not know or appreciate the resources in their control, or even know where it is. Some unknowing or uncaring owners liquidate their timber for short-term profits at the expense of a more sustainable and higher value source of wood. There is an increasing amount of protected forestland, acquired through purchase by various state agencies, non-governmental organizations, and municipalities. Approximately 34% of MA forests appear to be protected from development in this way. There is an increasing use of Conservation Restrictions, which eliminate the right to develop, but leave forestland in private hands. A Current-Use property tax program is used by only about 10% of forestland owners.

4. Society

The steady urbanization/suburbanization of MA has resulted in a citizenry that lives predominantly in a developed environment, and is relatively unaware of the wealth of benefits that forests provide, and the ways that carefully managed forests can enhance those benefits. Harvesting and management are largely considered incompatible with environmental protection. Forest-related issues and the importance of maintaining sustainable forestlands in Massachusetts are not a high priority among key leadership in the public, private, and non-profit sectors. Overall, there is poor public support for forests, considering the extraordinary wealth of benefits that they provide.

vitaly important ecological and economic asset and responsibility to present and future MA citizens. Harvesting is perceived by the public as an asset to help meet domestic wood needs. A statewide science-based environmental curriculum exists for grades K-12 which teaches these lessons to future generations of MA citizens.

5. Management

Public and private managers commonly cooperate seamlessly across property boundaries while respecting private ownership rights. Spatial and ecological information is exchanged freely and easily between managers, owners, and other groups, thereby facilitating informed decisions about forest stewardship in a broader ecosystem/habitat context. Municipalities, land trusts, and other private non-profit organizations play an important role in management of forestlands. Forest management practices are sensitive to ecological and cultural needs. Management is adaptive to changing conditions, resulting from new pests and pathogens or changing environments. Licensed foresters and other recognized professionals are involved in the management of public and private lands. Comprehensive and timely monitoring of forests provides managers and owners with current information about the status of the forest resource, thereby facilitating adaptive management. The public is also kept informed about the current status of the forest, thereby enhancing its knowledge and appreciation of the forest. The state regularly reviews and consolidates the various overlapping and redundant statutory authorities and regulations relating to forests and forestry (e.g., Chapter 61, 132, 131, forester licensing).

6. Wood products

Sustainable forestry practices that enhance the long-term value of forests are applied; high-grading is not practiced. Diverse and abundant markets exist for low-grade, underutilized products to reduce high-grading and increase productivity of residual stands through the judicious application of silvicultural practices. The state strives to meet more of its wood consumption needs "locally" or within the state by fostering innovative approaches (e.g., cooperatives, wood products exchanges, co-generating power plants that burn wood, value-added processing, development of new/existing technologies such as the combination of wood and polymers for new products) and stimulating long-term silvicultural practices that lead to higher quality products. Local, sustainable production of wood means that MA citizens rely less on wood from other parts of the world, which may not be produced in as sustainable or ecologically sensitive manner.

7. Landscape configuration

The Ecological Network of Massachusetts, a spatial framework for effective planning, protection, and management of the key forests of the Commonwealth, provides a wide range of forest benefits to the citizenry. It is based on five key components: retention/protection of large forest areas; identification and protection/enhancement of major wildlife and water protection corridors (wide ribbons of life); identification and protection/enhancement of local woods and other natural areas; maintenance of linear neighborhood-to-nature linkages; and the identification of road mitigation points. The Ecological Network is widely recognized and supported by the local citizens of Massachusetts, and indeed serves as a model of permanent forest benefits linked to the public, which is progressively recognized and emulated by other states and nations.

5. Biological health/ ecological status

Introduced non-native pathogens and insects, and other invasive exotic species, plus physical changes such as climate warming and acid precipitation, threaten major changes to forest ecosystem structure and function. Our forests may be approaching unforeseen thresholds of cumulative effects. In addition, overall forest loss is resulting in fragmentation of the forest that remains, and a change in that remaining forest due to edge effects that radiate from developed land uses. There are very few large forest tracts, (e.g., >1,000 acres) without roads, which can interrupt native ecosystems and wildlife populations.

Due to its recovery from agricultural abandonment, heavy cutting at the turn of the last century, or significant hurricane disturbance, most natural forests, and indeed forests in general here in the 60-110-year age class, are relatively even-aged. Very old forests, greater than 150 years, are quite unusual, and almost no original old-growth forest remains. Likewise, there is very little early-successional habitat or young forest in Massachusetts. Overall, forests are getting older, and their growth exceeds removals of timber by a factor of more than 3-to-1.

6. Management

Coordination and cooperation among state and local agencies responsible for various regulations that affect forestland is weak and needs to be strengthened. Although most of the forestland in MA is privately held, there is very little government support to promote its wise stewardship or coordination among state and local agencies responsible for regulations that affect forest land. What little attention is paid to private forestlands is through regulation and a poorly subscribed property tax program. There is no systematic, statewide comprehensive assessment of forest resources other than a USDA Forest Service inventory, conducted at roughly 15-year intervals. Likewise, statewide assessments of land use are infrequent - the last one being in 1985. Given the importance of forests and their contributions, we have an acute paucity of information about its status and health with which to make informed management decisions. The Commonwealth has three principal agencies responsible for managing land (MDC, DEM, MassWildlife), and a cadre of state lands foresters who steward that land. There is relatively little management of private forestland, at least as measured by participation in the state's forest management/property tax program. In spite of the fact that there is little actual private land management, harvesting of wood occurs. In the absence of judicious silviculture, such harvesting can be merely the removal of high-quality timber, leaving a residual stand of poor quality wood with little potential for sustainable yields of more valuable products.

7. Wood products

In spite of the fact that MA citizens live in a heavily forested landscape, only approximately 5-10% of their wood products come from MA forests. The vast majority of wood is harvested elsewhere. Concurrently, there is an expanding international demand for wood, creating new opportunities for wood from MA, and owners of forestland. In general, due to the very favorable growth-to-removal ration of over 3:1, wood from MA forests is considerably underutilized. There is a much higher potential for the harvest and primary and secondary processing of wood from MA forests. There are currently over 500 licensed timber harvesters, 125 licensed foresters, and roughly 100 sawmills. On average, 57.5 million board feet are harvested annually from MA forests, from 30,500 acres of forestland, and 750 operations.

Prioritization of Forest Vision Recommendations.

Each Forest Vision Team member had 200 theoretical "Vision Bucks" to "invest" in the following 21 recommendations, as a means of prioritization. Listed below for each recommendation is the TOTAL number of Vision bucks invested by 13 Team members, the RANK based on TOTAL, the MINimum and MAXimum invested amounts by an individual member, the NUMBER of members who invested in a given recommendation, the AVERAGE investment of 13 members, and the standard deviation of that average.

1. Land protection

1. Aggressive forest protection via acquisition of conservation restrictions on private land, and fee acquisition where appropriate. Such land protection should occur strategically within a regional or landscape-level context, taking into consideration the pattern of existing public and private conservation lands. This effort should be a vehicle for the systematic conservation of biodiversity. Such land protection on the part of the state proceeds more flexibly, through multi-year projects, and with increased emphasis placed on the application of leaving land in private hands but with conservation restrictions to protect public interests. Work in partnership with the vast network of private non-profit organizations to support local initiatives that have broad impacts and that attract matching dollars from private and foundation sources. This is more cost-effective and can hence reach more forestland in a shorter amount of time. Every public dollar devoted to forest protection can go farther and be more effective.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
625	1	0	125	11	48.1	44.75

2. Finance/ economics

1. State studies the feasibility and creation of financial rewards or incentives for the following:
 - development/protection of municipal forests
 - private forest owners who supply public benefits
 - Providers of local value-added wood and other forest products that will enhance returns to private owners and local economies.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
64	14	0	20	8	5.3	5.92

2. Current-use property taxation is studied and greatly overhauled to make forestland ownership an attractive and effective alternative to private landowners, and to provide a significant reward for the stewardship of their land.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
121	5	0	39	10	10.1	10.34

	TOTALS	rank by	MINIMUM	MAXIMUM	NUMBER of	AVERAGE	STD
		total	SCORE	SCORE	INVESTORS	SCORE	DEV
1. Land protection							
	625	1	0	125	11	48.1	44.75
2 finance/economics							
1. create incentives	64	14	0	20	8	5.3	5.92
2. overhaul current use	121	5	0	39	10	10.1	10.34
3. generate funds for forests	72	11	0	18	9	6	5.8
total	257						
3. Landscape-level p & m							
1. identify & map areas	143	4	0	25	11	11	7.65
2. target, protect, establish	309	2	0	190	11	23.7	50.75
total	452						
4. Info, mon. and research							
1. update eco, socioeco data	75	10	0	18	9	6.3	5.7
2. long-term eco monitor sites	47	19	0	25	5	3.9	7.49
3. establish data bank	43	20	0	15	5	3.5	5.45
total	165						
5. Management							
adaptive mgt areas on state lands	58	16	0	25	6	4.8	7.74
6. Education							
training programs	120	6	0	50	6	10	15.21
7. Administration							
1. EOE Forest Council	91	9	0	25	9	7.5	8.03
2. Knowledge Mgt System	68	13	0	20	7	5.6	7.5
3. evaluate, re-organize agencies	300	3	0	100	9	25	33.82
4. Forest Network System	57	17	0	20	5	4.8	7.74
5. forest policy overview, consolidation	95	8	0	30	9	7.3	10.48
total	611						
8. Products & Services							
1. incentives for cooperation	105	7	0	30	9	8	8.85
2. incentives for new wood use	69	12	0	20	8	5.3	6.11
3. non-wood forest products	26	21	0	10	5	2.2	3.38
4. incentives for native wood	56	18	0	10	9	4.3	3.96
5. incentives for eco-services	62	15	0	17	7	5.1	5.67
total	318						
Total(13 members, 200 VB)	2600						

Recommendations to achieve the desired future conditions of MA Forests**4. Information, monitoring, and research**

1. Establish a mechanism for ensuring regular updates of ecological and socioeconomic spatial and other data. Specifically, establish a schedule for regular and frequent updating of satellite and air photo imagery for the entire state, and use these data to update land use coverage on a frequent basis, to assist land protection and acquisition efforts, ongoing management, and planning.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
75	10	0	18	9	6.3	5.7

2. Establish a network of long-term ecological monitoring sites across the state and implement a program for monitoring and research at each site. Such data would provide an ongoing indication of the overall extent of forest, its distribution, its structure/composition, ownership and protection status, and health/vigor.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
47	19	0	25	5	3.9	7.49

3. Establish a databank to make available to any and all interested parties the results of monitoring and land use updates. Such information would be of great use to individual, municipal, and other planning efforts.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
43	20	0	15	5	3.5	5.45

5. Management

1. Establish a network of adaptive management areas on state lands to serve as focal areas for testing innovative research and management approaches. The management of these forests will incorporate, where practicable, the restoration and maintenance of indigenous biodiversity and ecosystem processes. Managers of public land will incorporate current research results and the latest scientific knowledge into all their management planning and decision making, and remain current in the latest research findings. They will communicate their research needs to the scientific community and will be eager recipients/users of scientifically derived information that may pertain to their management.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
58	16	0	25	6	4.8	7.74

Recommendations to achieve the desired future conditions of MA Forests

3. A task force is created to investigate a means by which significant and consistently sustainable and specifically dedicated funds can be generated and invested in public and private Massachusetts forests, for the benefit of all citizens. Possible sources of such funds include:

- Timber sale proceeds from state lands
- Fees based on consumption of gasoline, home heating oil and gas, electricity or other uses of carbon, which forests effectively sequester;
- Fees on water consumption, which depend on healthy forested landscapes;
- Fees on rooms and meals that benefit from attractive forested landscapes.
- Fees on ammunition, weapons, binoculars, bird feeders, and other means by which wildlife are enjoyed throughout Massachusetts

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
72	11	0	18	9	6	5.8

3. Landscape-level protection and management

1. Authorize one or several large-scale planning and protection efforts with a diversity of public and private sector expertise to undertake the following activities:

- Identify and map large forest areas
- Identify and map major wildlife and water protection corridors
- Identify and map ecological enhancement zones for transportation corridors
- Identify and map existing and cultural and nature recre-educational centers
- Identify and map recreational trails

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
143	4	0	25	11	11	7.33

2. On the basis of the information gathered above,

- Target land protection efforts in large forest areas, major corridors, and areas that are significant for biodiversity conservation.
- Establish new cultural and nature recre-educational centers
- Identify ecological enhancement zones for transportation corridors
- Protect medium-sized patches of forest in local areas.
- Establish trail systems to link regions and centers.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
309	2	0	190	11	23.7	50.75



Recommendations to achieve the desired future conditions of MA Forests

4. Create a system of Forest Networks - integrated info-exchange networks are voluntary points of information/advice/technical assistance, or "one-stop shopping" for info on:

Forest management; land protection; wood products marketing; recreation opportunities; general forest information; forest health; biodiversity; forest-related enterprises; forest monitoring results.

Audiences relying on this suite of information include:

forest owners, professional forest managers; participants in the wood industry; members of the media; educators; citizens; recreators; investors; municipal planners; land trusts.

The Forest Network would use the Knowledge Management System (described above, 8.2), as well as a cadre of Forest Networkers affiliated with each watershed, whose job it would be to:

Convene meetings of landowners, respond to requests for information; serve as catalysts or facilitators to knit together groups and individuals with forest concerns or opportunities for cooperation; constantly solicit feedback and information from forest audiences; serve as technical "circuit-riders" to assist communities and land trusts with forest-related questions and issues; establish a network of demonstration areas within the watershed to serve as excellent examples for a wide variety of audiences.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
57	17	0	20	5	4.8	7.74

5. The state undertakes a comprehensive forest policy overview, with the goal of consolidating and streamlining the various statutes and regulations that influence forests. For example, Chapter 132, the Forest Cutting Practices Act, and / or its appropriate regulations, is reviewed and amended to discourage highgrading, and clarify landowner recognition and willful participation in such activity on their lands.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
95	8	0	30	9	7.3	10.48

8. Products and Services

1. Commonwealth develops incentives that encourage groups of landowners and others to cooperate for the sake of:

- Finding/creating additional markets for underutilized forest materials;
- Focusing on value-added development and marketing of forest products;
- Enhancing individual and collective economic and political impact
- Improving the development of locally based forest products, to reduce reliability on materials from outside our state and region.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
105	7	0	30	9	8	8.85

Recommendations to achieve the desired future conditions of MA Forests**6. Education.**

1. Training programs and other educational activities are designed to reach individuals and selected groups that are in a position to influence decisions regarding land development and the judicious care of Massachusetts's forests.

Such target audiences include: private foresters; members and volunteers of local land trusts; Conservation commissioners, planning board members, and other municipal officials; teachers; environmental educators; non-profit groups that own land.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
120	6	0	50	6	10	15.21

7. Administration

1. Creation of an EOEА Secretary's Forest Council, to advise the EOEА Secretariat on matters of importance to forests. The Council would be comprised of representatives of forest ownership, forest industry, environmental organizations, conservation biologists and other appropriate scientists, and others. It would be independent of the various state agencies, though would frequently seek information from appropriate state agencies.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
91	9	0	25	10	7.5	8.03

2. The Commonwealth invests in the development, pilot testing, and continued operation of a Knowledge Management System for Massachusetts forests: a comprehensive database that provides up-to-date and easily accessible information on all aspects of Massachusetts forests. When fully operational, this web site should be able to respond to inquiries from a wide variety of individuals and organizations with diverse levels of sophistication, and be accompanied by effective mechanisms and incentives for collecting and maintaining a current and all-inclusive base of information on forestland.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
68	13	0	20	7	5.6	7.5

3. Evaluate and re-organize the bureaucratic structure of state agencies responsible for forest protection and management within the Commonwealth. The current structure and bureaucratic focus on game, forest management, water, and non-game/biodiversity perspectives is not conducive to the proactive and holistic attention that needs to be paid to forests, both those owned by the state, and those in private hands. The coordination of planning, land protection/acquisition, and management would be made more effective and comprehensive with a re-organized structure. Through a bureaucratic reorganization recommended above, place much greater emphasis on private owners of forestland- owners of 78% of the Commonwealth's forests.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
300	3	0	100	9	25	33.82

Desired future condition:

1. Ownership

The amount of forest in public ownership, non-profit conservation ownership, and conservation easements on private land is significantly greater than at present. The new and existing protected forestland fit together to form an integrated spatial framework, an "Ecological Network of Massachusetts", that provides numerous ecological, economic, cultural, recreational, and other benefits to the citizens of the Commonwealth. The majority of forest remains in private individual, family, and non-profit hands, thereby ensuring a diversity of activities and stewardship on the landscape, which in itself contributes to overall resiliency. Woodland owners are well educated about the highest and best uses of their land, and make informed decisions. They understand the need to minimize degrading or unsustainable practices, and make use of professional advice and expertise in the stewardship of their lands. An improved current-use property tax system rewards landowners for retaining forest in the face of increased development pressure, and thereby providing the public with a wealth of benefits.

2. Protection from development

As the need for developed land continues, the state encourages appropriate development and helps direct it to the most appropriate areas, fostering widespread economic well being while protecting sensitive natural resources. Forest protection is based on a strategy of more than merely a number of acres protected, and takes into account ecological functions and roles. For example, important ecological sites that preserve the integrity of larger areas/ecosystems are targeted. In addition, roadless areas are established and protected that allow nature and natural processes to proceed with minimal human influence.

3. Biological health

There is a better overall balance of forest ages, structures, and conditions, with more older forest and more younger forest, thereby providing a greater diversity of habitats and supporting more biodiversity. All native biotic and natural abiotic elements associated with forest ecosystems are present with sufficient redundancy at appropriate spatial and temporal scales across the landscape to ensure resiliency following disturbance and stress (maintain all of Aldo Leopold's "cogs"). All natural ecosystem processes (such as disturbance, succession, evolution, natural extinction, recolonization, fluxes of materials and other stochastic and deterministic events) that characterize the structural and compositional variability found in natural systems are present and functioning at appropriate spatial and temporal scales. The basic patterns and processes of forest ecosystems (i.e., structure, composition, function) are allowed to vary over space and time in response to natural disturbances and successional processes. Human-derived goods (e.g., wood products, game) and services, e.g., clean water, recreational opportunities) are produced without degrading these important ecological benefits of forests.

4. Society

Forestland is understood and appreciated by all to be an important contribution to the local economy, a supplier of plentiful and pure water, a source of recreation and enjoyment, and a source of continued cultural enrichment, education, and inspiration. It is recognized by the public as being a

Recommendations to achieve the desired future conditions of MA Forests

2. The Commonwealth develops incentives for the new and creative use of wood for such products as: co-generating power plants that use wood as a fuel; polymer-wood based materials. Such uses of wood will enhance local economies, increase returns from forest management to private owners, and reduce our reliance on other regions to supply our material and energy needs.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
69	12	0	20	8	5.3	6.11

3. The Commonwealth stimulates the economic potential of non-wood-based forest products, such as greens, mushrooms, berries, nuts, herbs, recreational opportunities, and other forest nurture-based business enterprises.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
26	21	0	10	5	2.2	3.38

4. The Commonwealth stimulates the economic potential of wood from Massachusetts forests by providing incentives to the wood-using industry to use native raw materials, thereby reducing the amount of raw wood materials that are exported from Massachusetts.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
56	18	0	10	9	4.3	3.96

5. The Commonwealth develops incentives for the provision of such valuable forest ecosystem services as: carbon sequestration/ air quality; recreation; planning and zoning; water supply protection, tourism; and the protection of state-listed species.

TOTAL	RANK	MIN	MAX	NUMBER	AVERAGE	STD DEV
62	15	0	17	7	5.1	5.67