	A	B	C	D	E	F	G	H	L	P	T	U	V
1	**Scientific_Name**	**Common_Name**	**Grouping**	**Type**	**Tier**	**COR**	**Habitats**	**Threat_Code**	**Threat_Description**	**Threat_Long**	**Actions**	**Working_Lands**	**Notes**
2	Scolopax minor	American Woodcock	Bird	Bird	I	a	Forests and Woodlands, Grasslands, Shrublands, Savannas, Glades and Barrens, Riparian and Floodplains,	11.1.1, 5.3,	Changes in Vegetation Communities / Logging and Wood Harvesting /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / Harvesting trees/other forest species in natural environments for timber or fiber outside of plantations (Threat 2.2). Includes cutting and the use of machinery, as well as wood storage and debris management, excluding their transport (Threat 4.1) and associated erosion (Threat 9.3) /	Habitat protection is needed. Cooperation and education of land owners should be high priority conservation methods. This includes both breeding and wintering habitats. (11.1.1), Pursue proper and directed (appropriate) forest management. Forest management needs to include more diverse management to include early to mid-successional forest (habitat) stages interspersed with other successional stages. Not enough cutting (management) is practiced on many federal forests/lands. (5.3)	Breeds in woodland areas near moist or wet areas. Forage in dry fields, agricultural fields, bottom land and other upland fields .	Pursue better understanding of factors relating to recruitment and nest survival, including nest predation, nest predators and potential ways to improve nest survival. Recruitment appears to be a limiting factor - if nesting/brood rearing habitat is what is limiting recruitment, this habitat type should be a major focus of active management.
3	Troglodytes hiemalis	Appalachian Winter Wren	Bird	Bird	III	c	Forests and Woodlands, Boreal Forests	No specific identified threats, see notes for more information,	/ /	/ /	Collect additional data on the breeding distribution. Pursue collection of ecological and reproductive data in Virginia.		Collect additional data on the breeding distribution of what is thought to be a relatively small population of this range-restricted subspecies in Virginia, expanding upon data from the 2nd Virginia Breeding Bird Atlas, eBird reports and other previous survey efforts. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity (where within eastern United States does Virginia's Appalachian Winter Wren winter) and winter ecology, as a path toward investigating geographic and temporal extent of limiting factors.
4	Peucaea aestivalis	Bachman's Sparrow	Bird	Bird	I	a	Forests and Woodlands	No specific identified threats, see notes for more information,	/ /	/ /	Explore the possibility of reintroducing the species to Virginia, where it was last documented in 2002.		Explore the possibility of reintroducing the species to Virginia, where it was last documented in 2002, targeting stable mature pine savannah habitats such as those found at TNC's Piney Grove Preserve and DWR's Big Woods Wildlife Management Area
5	Riparia riparia	Bank Swallow	Bird	Bird	III	b	Grasslands, Shrublands, Glades and Barrens, Riparian and Floodplains, Shorelines, Artificial Impoundments, Mines	No specific identified threats, see notes for more information,	/ /	/ /	Compile existing data and pursue targeted surveys in order to identify large/important colony sites. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects.	Nests in vertical banks, cliffs, and bluffs along rivers, streams, lakes, and coastal shorelines, as well as in in artificial sites such as sand and gravel quarries and road cuts. Foraging habitats surrounding nesting colony may include wetlands, open water, grasslands, riparian woodlands, agricultural areas, and shrublands.	The reasons for declines are not well understood, and better information on abundance and distribution are necessary. Compile existing data and pursue targeted surveys in order to identify large/important colony sites. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects.
6	Tyto alba	Barn Owl	Bird	Bird	I	a	Forests and Woodlands, Grasslands, Glades and Barrens, Tidal Wetlands, Urban Lands, Mines	2.1.2, 1.1.1, 9.3.3	Perennial Cropping Systems / Dense Housing and Urban Areas / Herbicides and Pesticides	Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover. / Medium- to high-density development for residential use and buildings for related services. Allows very little to no maintenance of ecological functions. E.g., urban areas, suburbs, villages, schools, libraries, seniors' housing, hospitals / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides.	Create/maintain fallow pastures through CRP and CREP programs (2.1.2), Promote conservation and agricultural land easements, agricultural subsidy programs, and local land use planning efforts to mitigate development impacts (1.1.1), Research the impacts of neonicotinoids on prey base and impact on Barn Owl health/mortality (9.3.3)	Nests in barns, silos duck blinds, abandoned building, nest boxes church steeples, natural cavities in trees, cliffs, and quarries.	
7	Megaceryle alcyon	Belted Kingfisher	Bird	Bird	III	b	Riparian and Floodplains, Shorelines, Transportation Networks, Artificial Impoundments, Mines	No specific identified threats, see notes for more information,	/ /	/ /	Investigation of migratory status and additional life history information of Virginia's Belted Kingfisher. collection of ecological and reproductive data; Investigate the relative use of nesting substrates that are natural (ex. riparian earthen banks) vs artificial (ex. road cuts, landfills, sand and gravel pits)	Breeds in vertical earthen banks along ponds, lakes, rivers, streams and calm marine waters, but may also nest in artificial habitats including ditches, road cuts, landfills, and sand and gravel pits. Feeds in waters with low turbidity.	The reasons for declines are not well-understood. Pursue the following: 1. investigation of migratory status of Virginia's Belted Kingfisher, which may be partial migrants, to determine whether potential threats should be investigated on wintering grounds outside of Virginia; 2. identification of essential resources during winter; 3. collection of ecological and reproductive data; 4. relative use of nesting substrates that are natural (ex. riparian earthen banks) vs artificial (ex. road cuts, landfills, sand and gravel pits) and whether the latter represent population sinks.

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8	Catharus bicknelli	Bicknell's Thrush (transient)	Bird	Bird	IV	a	Forests and Woodlots, Shrublands, Beaches and Dunes, Urban Lands	1.1.2, 7.3.2,	Low-Density Housing Areas / Vegetation Succession /	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Continue supporting the work of the Eastern Shore Conservation Alliance to address the needs of migratory passerines, including Bicknell's Thrush, through protection and management of stopover habitat along the species' migratory routes in Accomack and Northampton counties, ensuring that the Alliance is taking the species' specific habitat requirements into account. (1.1.2, 7.3.2)	During migration in coastal Virginia, it is associated with upland shrub and dune scrub forest dominated by loblolly pine, various oaks, wax myrtle and old field habitat, though it is also documented in forested suburban habitat.	
9	Laterallus jamaicensis	Black Rail	Bird	Bird	I	a	Shorelines, Tidal wetlands, Artificial Impoundments	11.1.1, 8.1.4, 11.5.2	Changes in Vegetation Communities / Aquatic Plants / Storm Surges	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / / e.g., erosion of shorelines/beaches during storms.	Address impacts of sea level rise as follows: 1. purchase and conserve properties in marsh migration zones where upland habitats have a high probablity of transforming into suitable Black Rail (BLRA) breeding habitat and manage and monitor these properties for BLRA once the transformation has occurred. 2. Using Doe Creek WMA as a model, integrate the creation and maintenance of suitable BLRA breeding habitat in DWR-owned coastal impoundments' management plans and secure the necessary funding to implement (and evaluate) these measures. 3. Encourage managers of privately-owned coastal impoundments to engage in BLRA breeding habitat management through conservation easements and NRCS funding. 4. Conduct regular BLRA occupancy and breeding productivity monitoring in coastal impoundments that are managed for BLRA to evaluate the effectiveness of the impoundment management strategies over time. (11.1.1), 1. Improve existing BLRA breeding habitat by conducting regular control of phragmites and other invasive plant species at coastal DWR WMAs with suitable BLRA breeding habitat. (8.1.4), 1. Develop, secure funding for and implement a pilot project involving thin layer deposition of dredge material obtained from local navigational channels to increase the elevation of Chesapeake Bay marshes that are crumbling or breaking apart as a result of storm surges and severe wave action. 2. Evaluate the effectiveness of this marsh restoration technique and its impacts on the marsh hydrology and plant and wildlife communities over the long term. (11.5.2)		<u>Other potential threats for which no achievable actions have been identified</u>: 7.3.1; 8.1.1; 8.2.5; 11.2.2; 11.4.2; 11.5.2;
10	Rynchops niger	Black Skimmer	Bird	Bird	III	a	Shorelines, Beaches and Dunes, Large Tidal Rivers, Tidal Wetlands, Estuaries, Marine Nearshore, Urban Lands, Transportation Networks	11.2.2, 8.4.2, 1.2.1	Changes in salinity / Viral Pathogens / Commercial and Industrial Areas	/ e.g., ranavirus in amphibians, rabies in raccoons. / industrial parks, manufacturing plants, offices, shopping centers, all military base facilities, power plants, seaports, shipyards, airports	Address potential impacts to Black Skimmer (BLSK) prey as follows: 1. Continue to participate in regional and coastwide breeding BLSK diet studies using a variety of techniques (e.g., stable isotope analyses, DNA analyses on fecal samples, visual observations of foraging behavior) to assess how shifts in the distribution of forage fish driven by climate change influences the diet of piscivorous seabirds over time. NOTE: In the future, we plan to expand these diet studies to include other seabird species such as Gull-billed Tern, Least Tern and Royal Tern. (11.2.2), 1. Develop a rapid response plan for seabird Highly Pathogenic Avian Influenza and other disease-related mortality/morbidity events that occur during the breeding season. NOTE: this action is intended for all seabird species that breed in Virginia. (8.4.2), For populations nesting in urban areas: 1. Continue to monitor, manage and maintain the temporary nesting habitat used by BLSK on barges adjacent to the Hampton Roads Bridge-Tunnel (HRBT) until the construction ofa new nesting island has been completed. 2. Track the annual number of pairs and breeding success of BLSK (and other seabird species) utilizing the new nesting island which will be located in the vicinity of the HRBT. 3. Maintain suitable breeding habitat and provide sufficient law enforcement protection for breeding BLSK and other seabird species on the new nesting island over the long term. (1.2.1)	Nests sandy beaches on the barrier islands and Chesapeake Bay islands. Also nests on artificial islands and barges in the Hampton Roads area adjacent to a major instate highway, and occasionally on shell rakes at the edges of salt marshes in the seaside lagoon system. Forages over inlets, ocean waters close to the shoreline, and in tidal waters of coastal bays, estuaries, rivers, and saltmarsh tidal pools.	Address potential impacts to Black Skimmer (BLSK) prey as follows: 1. Continue to participate in regional and coastwide breeding BLSK diet studies using a variety of techniques (e.g., stable isotope analyses, DNA analyses on fecal samples, visual observations of foraging behavior) to assess how shifts in the distribution of forage fish driven by climate change influences the diet of piscivorous seabirds over time. NOTE: In the future, we plan to expand these diet studies to include other seabird species such as Gull-billed Tern, Least Tern and Royal Tern. (11.3.3, 11.3.4)
11	Mniotilta varia	Black-and-white Warbler	Bird	Bird	IV	b	Forests and Woodlands	1.1.2, 4.2, 5.3.1	Low-Density Housing Areas / Utility and Service Lines / Complete Removal of the Forest Cover	Extensive development that is residential (including resorts), where the spacing allows ecological functions to continue to some extent. This type of development is seen particularly in rural and agroforestry areas. E.g., residential buildings in agricultural areas, cottages, vacation homes near water bodies, ecotourism lodges, fishing resorts, backcountry ski lodges. / Linear networks for transportation energy and various resources, including their rights-of-way. Possible impacts: electrocution, barrier to dispersal, habitat modification/loss, fatal collisions. / Cutting removing the majority of the forest cover. E.g., clear-cutting and related cuts (CT, CRS, CPRS, CPHRS, CPPTM).	Though it is characterized as a generalist with broad habitat tolerances, the species is potentially sensitive to forest fragmentation, which can result via the identified threats. Investigate the species' sensitivity to forest fragmentation and/or work to retain large forest blocks via multiple mechanisms (land protection, conservation easements, cost-share programs for private lands, etc) (1.1.2, 4.2.1, 4.2.2, 5.3.1)		The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.

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12	Pluvialis squatarola	Black-bellied Plover (winter)	Bird	Bird	IV	a	Shorelines, Beaches and Dunes, Tidal Creeks and Rivers, Tidal Wetlands	11.1.1	Changes in Vegetation Communities / /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Address impacts of sea level rise as follows: 1. Increase the elevation of mudflats used by foraging and roosting Black-bellied Plover (BBPL) that are in danger of being lost to sea level rise through the thin layer deposition of dredge material obtained from adjacent navigational channels. 2. Evaluate the effectiveness of this technique by conducting before and after shorebird surveys to quantify differences in shorebird use and by conducting before and after benthic invertebrate surveys and sampling to measure differences in prey types, density and availability. 3. Enhance and increase BBPL roosting habitat in the seaside marshes by increasing the elevation and footprint of eroding shell rakes. (11.1.1)	Wintering birds use tidal creeks, estuaries, lagoons, and shorelines, where they feed on mudflats and beaches. They often use nearby agricultural fields as well, especially during high tides, when mudflats are underwater.	Other potential threats for which no achievable actions have been identified: 7.3.3; 8.1.1 (introduced PEFA impacts); 8.4.2; 9.2.1; 11.4.2 (drought impacts on prey availability); 11.2.2 (salinity shift impacts on prey); 11.3.3 temp change impacts on prey); 11.5.2
13	Quiscalus major	Boat-tailed Grackle	Bird	Bird	III	a	Beaches and Dunes, Tidal Wetlands, Urban Lands	11.1.1	Changes in Vegetation Communities / /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Conduct the following activities for higher-tiered, marsh-nesting avian SGCN, which would in turn benefit marsh-nesting populations of Boat-tailed Grackle threatened by sea level rise: 1. purchase and conserve properties in marsh migration zones where upland habitats have a high probablity of transforming into suitable breeding habitat. 2. Manage coastal WMAs that encompass suitable marsh habitats for breeding marsh birds. 3. Monitor as part of regular secretive marsh bird occupancy and breeding productivity monitoring on DWR WMAs that are managed for marsh-nesting birds to evaluate the effectiveness of management strategies. (11.1.1)	Breed in freshwater and salt marshes and adjacent open upland habitats in coastal Virginia. Forages over wide range of habitats, from city streets and plazas to cultivated fields, open beaches, and marshes.	Conduct periodic monitoring (ex. every 5-10 years) at a network of sites to evaluate population trend/stability
14	Dolichonyx oryzivorus	Bobolink	Bird	Bird	III	a	Grasslands	2.1.2, 9.3.3,	Perennial Cropping Systems / Herbicides and Pesticides /	Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Coordinate with and support expansion of programs such as the Virginia Grassland Bird Initiative, which conduct research and provide financial incentives to private landowners to adopt BMPs to improve grassland bird productivity (2.1.2), Research the impacts of pesticides on prey base and impact on grassland bird communities (9.3.3)	Breeds in hayfields, meadows, marshes, and fallow fields.	The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia; expand upon existing studies to determine migratory connectivity for Virginia/Appalachian populations; investigate threats on wintering grounds (including degree of population reduction through pest control programs such as shooting and poisoning)
15	Branta bernicla	Brant (winter)	Bird	Bird	III	a	Shorelines, Large Tidal Rivers, Tidal Wetlands	7.2.4, 7.2.5,	Drainage in Agricultural Environments / Drainage in Forest Environments /	Construction and maintenance of channels that drain surface waters in agricultural environments. Excludes the use/management of culverts (Threat 7.2.3). Excludes erosion/sedimentation that are associated with the drainage system (Threat 9.3.2). / Construction and maintenance of channels that drain surface waters in forest environments. Excludes erosion/sedimentation that is associated with this drainage system (Threat 9.3.2). /	Restoration of drained wetland habitats for agricultural use to promote water quality and improvement of SAV food resouces. (7.2.4), Restoration of drained forested wetlands to promote water quality and improvement of SAV food resouces. (7.2.5)		
16	Cardellina canadensis	Canada Warbler	Bird	Bird	I	b	Forests and Woodlands, Boreal Forests	5.3	Logging and Wood Harvesting / /	Harvesting trees/other forest species in natural environments for timber or fiber outside of plantations (Threat 2.2). Includes cutting and the use of machinery, as well as wood storage and debris management, excluding their transport (Threat 4.1) and associated erosion (Threat 9.3) / /	The Canada Warbler Full-life-cycle Conservation Action Plan identifes forestry practices contributing to shrub layer removal as a major threat faced by this species on the breeding grounds. This is a suspected, but not known, threat in Virginia. Coordinate with the Canada Warbler International Conservation Initiative on development of regional forestry Best Management Practices (BMPs) for the species as a first step toward addressing this potential threat. (5.3)		The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors. Coordinate with Southern Wings on supporting projects that are generating data on Canada Warbler in its Central America migration corridor and its Central/South America wintering grounds.
17	Setophaga cerulea	Cerulean Warbler	Bird	Bird	II	a	Forest and Woodlands	7.3.2	Vegetation Succession / /	Natural vegetation succession causing habitat loss for species of early successional habitats. / /	This is a suspected, but not known, threat. Create/maintain suitable mature forest habitat by applying Appalachian-specific Cerulean Warbler silvicultural BMPs to create canopy gaps favored by the species. Pursue application of BMPs through partnerships with the Appalachian Mountains Joint Venture and others operating via NFWF-funded (and other) grants. (7.3.2)		The reasons for declines are not well understood. Support creation of an Integrated Population Model, and pursue collection of additional ecological and reproductive data in Virginia, via coordination with the Cerulean Warbler Technical Group. Support Southern Wings projects to collect demographic data on the species' wintering grounds in South America.
18	Chaetura pelagica	Chimney Swift	Bird	Bird	IV	b	Forests and Woodlands, Grasslands, Shrublands, Savannas, Urban Lands, Artificial Impoundments	No specific identified threats, see notes for more information,	/ /	/ /	Investigate occupancy of chimneys for nesting and roosting in urban areas. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity.	Breeds in chimneys and other artificial structures in urban, suburban and rural areas near human settlements. As an aerial insectivore, forages over a wide range of habitats including including forests, open country, lakes and ponds, suburban areas, and urban areas.	The reasons for declines are not completely understood. Investigate occupancy of chimneys for nesting and roosting in urban areas to determine whether declining availability of chimneys is a limiting factor. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.
19	Antrostomus carolinensis	Chuck-will's-widow	Bird	Bird	III	b	Forests and Woodlands, Grasslands, Shrublands, Savannahs	No specific identified threats, see notes for more information,	/ /	/ /	Collaborate with the Atlantic Flyway in its 2024 reinvigoration of the Nightjar Survey Network in order to collect better population trend data.		Collaborate with the Atlantic Flyway in its 2024 reinvigoration of the Nightjar Survey Network in order to collect better population trend data for this and other eastern nightjar species. The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors. Research could include investigation of habitat characteristics, as well as roadside mortality and insect prey availability as drivers of declines. Coordinate with the Atlantic Flyway on potential upcoming nightjar research projects.

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20	Rallus longirostris	Clapper Rail	Bird	Bird	IV	b	Tidal wetlands	11.1.1, 8.1.4,	Changes in Vegetation Communities / Aquatic Plants /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Conduct the following activities as conservation measures for Clapper Rail (CLRA) marsh habitat threatened by sea level rise: 1. purchase and conserve properties in marsh migration zones where upland habitats have a high probablity of transforming into suitable CLRA breeding habitat. 2. Manage coastal WMAs that encompass suitable marsh habitats for breeding CLRA. 3. Conduct regular CLRA occupancy and breeding productivity monitoring on DWR WMAs that are managed for marsh-nesting birds to evaluate the effectiveness of management strategies. (11.1.1), 1. Improve existing CLRA breeding habitat by conducting regular control of phragmites and other invasive plant species at coastal DWR WMAs with suitable CLRA breeding habitat. (8.1.4)		
21	Quiscalus quiscula	Common Grackle	Bird	Bird	IV	a	Forests and Woodlands, Urban Lands	5.1.5	Management/Control of Terrestrial Animals / /	Deliberately killing individuals of a terrestrial species for human gain that is governed by management measures. E.g., cormorant culling. / /	Evaluate the role of seed crop damage control programs and roost dispersal programs on population decline of the species (5.1.5)	Breeds in open habitats with scattered trees, including open deciduous or coniferous woodland, forest edge and around human settlements including parks, cemeteries and suburban developments.	
22	Chordeiles minor	Common Nighthawk	Bird	Bird	I	b	Forests and Woodlands, Grasslands, Glades and Barrens, Urban Lands	No specific identified threats, see notes for more information,	/ /	/ /	Collaborate with the Atlantic Flyway in its 2024 reinvigoration of the Nightjar Survey Network in order to collect better population trend data.	Breeds in open areas such as logged forest, woodland clearings, open forests, barren areas with rocky soil, and flat gravel rooftops in urban areas.	Collaborate with the Atlantic Flyway in its 2024 reinvigoration of the Nightjar Survey Network in order to collect better population trend data for this and other eastern nightjar species. The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors. Research could include assessment of the contribution of the loss of gravel rooftops to declines in urban populations; habitat assessments in rural areas; and investigation of insect prey availability as drivers of declines. Coordinate with the Atlantic Flyway on potential upcoming nightjar research projects.
23	Sterna hirundo	Common Tern	Bird	Bird	II	a	Shorelines, Beaches and Dunes, Large Tidal Rivers, Tidal Wetlands, Estuaries, Marine Nearshore, Urban Lands, Transportation Networks	11.2.2, 11.3.3, 11.3.4	Changes in salinity / Gradual Temperature Change / Increase in Temperature Fluctuations	/ e.g., altered sex-ratio in species relying upon a temperature dependent sex determination, reduction of dissolved oxygen that is available to fish species, earlier ice-free dates, thawing of permafrost affecting bird breeding sites. / Increase in temperature fluctuations, which disturb the phenological responses of wildlife. E.g., raise in the frequency of freeze-thaw events, rain-on-snow events, etc.	Address potential impacts to Common Tern (COTE) prey as follows: 1. Continue to participate in regional and coastwide breeding COTE diet studies using a variety of techniques (e.g., stable isotope analyses, DNA analyses on fecal samples, visual observations of foraging behavior) to assess how shifts in the distribution of forage fish driven by climate change influences the diet of piscivorous seabirds over time. NOTE: In the future, we plan to expand these diet studies to include other seabird species such as Gull-billed Tern, Least Tern and Royal Tern. (11.2.2, 11.3.3, 11.3.4)	In Virginia, known to nest on artifical islands and barges in the Hampton Roads area adjacent to a major interstate. Roosts on beaches, shorelines, mudflats, shellrakes, marinas, docks, and other artifical structures.	1. Continue to post bird closure signs around key mixed species seabird colonies that include COTE on the barrier islands (note: this action will benefit *all* nesting shorebirds and seabirds on the barrier islands). 2. Continue to support and engage in various forms of outreach and education (e.g., printed pamphlets, *Explore our Seaside* website, presentations, social media) which conveys the importance of the barrier islands to birds and other wildlife and clearly outlines island use policies. 3. Increase the presence of law enforcement and volunteer stewards on the barrier islands, especially during peak island use periods (e.g., weekends and summer holidays) to keep up with the annual increases in the number of people visiting the islands. 4. Expand signage and outreach efforts to sites in the Chesapeake Bay where COTE and seabird species nest (e.g., Clump and Tangier islands). (6), For populations nesting in urban areas: 1. Continue to monitor, manage and maintain the temporary nesting habitat used by COTE on barges adjacent to the Hampton Roads Bridge-Tunnel (HRBT) until the construction of a new nesting island has been completed. 2. Track the annual number of pairs and breeding success of COTE (and other seabird species) utilizing the new nesting island which will be located in the vicinity of the HRBT. 3. Maintain suitable breeding habitat and provide sufficient law enforcement protection for breeding COTE and other seabird species on the new nesting island over the long term. (1.2.1), Other potential threats for which no achievable actions have been identified: 11.2.2 (salinity impacts on prey); 11.3.3 (temp impacts on prey); 11.5.2; 7.3.3
24	Spiza americana	Dickcissel	Bird	Bird	II	a	Grasslands	2.1.2, 9.3.3,	Perennial Cropping Systems / Herbicides and Pesticides /	Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Coordinate with and support expansion of programs such as the Virginia Grassland Bird Initiative, which conduct research and provide financial incentives to private landowners to adopt BMPs to improve grassland bird productivity (2.1.2), Research the impacts of pesticides on prey base and impact on grassland bird communities (9.3.3)	Breeds in meadows, hayfields of clover, alfalfa or timothy, road sides and fence rows.	The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	**Scientific_Name**	**Common_Name**	**Grouping**	**Type**	**Tier**	**COR**	**Habitats**	**Threat_Code**	**Threat_Description**	**Threat_Long**	**Actions**	**Working_Lands**	**Notes**
25	Calidris alpina hudsonia	Dunlin (winter)	Bird	Bird	IV	a	Shorelines, Beaches and Dunes, Tidal Wetlands, Large Tidal Rivers, Artificial Impoundments	7.3.3, 11.1.1,	Natural Erosion and Sedimentation / Changes in Vegetation Communities /	Removal, transport and deposition of sediments that is caused by natural erosional processes. To be distinguished from the transport of sediments that is associated with tides (Threat 4.3.1), or by drainage systems in agriculture (Threat 7.2.5) and forestry (Threat 7.2.6). / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Address impacts of natural erosion and sea level rise as follows: 1. Enhance existing stopover and wintering habitat by placing beach compatible dredge material along shorelines and on existing or remnant spits and shoals in the seaside barrier island complex and in the Chesapeake Bay. 2. Increase the elevation of mudflats used by foraging Dunlin (DUNL) that are in danger of being lost to sea level rise through the thin layer deposition of dredge material obtained from adjacent navigational channels. 3. Evaluate the effectiveness of action 2 by conducting before and after shorebird surveys to quantify differences in shorebird use and by conducting before and after benthic invertebrate surveys and sampling to measure differences in prey types, density and availability. 4. Enhance and increase DUNL roosting habitat in the seaside marshes by increasing the elevation and footprint of eroding shell rakes. (7.3.3, 11.1.1)	Forage in saltwater areas such as estuaries and lagoons, in wet or flooded farm fields. When the tide is high, they gather on beaches, islands, or the upper edges of marsh. During migration, they stop over in sewage treatment ponds, moist harvested agricultural fields, and muddy edges of farm ponds, rivers, and lakes	Other potential threats for which no achievable actions have been identified: 7.3.3; 9.2.1; 11.4.2 (drought impacts on prey availability); 11.2.2 (salinity shift impacts on prey); 11.3.3 temp change impacts on prey); 11.5.2
26	Tyrannus tyrannus	Eastern Kingbird	Bird	Bird	IV	a	Forests and Woodlands, Shrublands	7.3.2	Vegetation Succession / /	Natural vegetation succession causing habitat loss for species of early successional habitats. / /	This is a suspected, but not known, threat. Pursue multiple strategies to ensure adequate supply of early-successional conditions across habitat types to meet reproductive needs of the species. (7.3.2)	Frequently in orchards, pastures, and shrubby borders, forest edges, along fields and highways, near streams with shrubby banks, swamps or marshes with dead stumps and snags, sometimes in open woodlands	The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.
27	Sturnella magna	Eastern Meadowlark	Bird	Bird	IV	b	Grasslands, Transportation Networks	2.1.2, 9.3.3,	Perennial Cropping Systems / Herbicides and Pesticides /	Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Coordinate with and support expansion of programs such as the Virginia Grassland Bird Initiative, which conduct research and provide financial incentives to private landowners to adopt BMPs to improve grassland bird productivity (2.1.2), Research the impacts of pesticides on prey base and impact on grassland bird communities (9.3.3)	Breed primarily in pastures and hayfields, but may also use airports, managed grasslands and other grassy areas.	The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.
28	Megascops asio	Eastern Screech-Owl	Bird	Bird	IV	b	Forests and Woodlands, Savannahs, Riparian and Floodplains, Urban Lands	1.1.1, 8.2.5, 8.4.2	Dense Housing and Urban Areas / Increased Predation by Mesopredators / Viral Pathogens	Medium- to high-density development for residential use and buildings for related services. Allows very little to no maintenance of ecological functions. E.g., urban areas, suburbs, villages, schools, libraries, seniors' housing, hospitals / e.g., racoons, striped skunks, foxes, coyotes. / e.g., ranavirus in amphibians, rabies in raccoons.	Pursue conservation of nest trees and forested woodlots in highly developed areas (1.1.1), Research predation by mammalian predators, hawk and owl predation, and nest failure through predation (8.2.5), Coordinate/conduct surveillance of West Nile Virus and Highly Pathogenic Avian Influenza (8.4.2)	Live and breed in any habitat with sufficient tree cover. Will use farmland, suburban landscapes and city parks.	
29	Pipilo erythrophthalmus	Eastern Towhee	Bird	Bird	IV	a	Forests and Woodlands, Shrublands, Savannas	7.3.2	Vegetation Succession / /	Natural vegetation succession causing habitat loss for species of early successional habitats. / /	This is a suspected, but not known, threat. Pursue multiple strategies to ensure adequate supply of early-successional conditions across habitat types (regenerating clearcuts, shrubby pastures, right-of-ways, abandoned fields, restored strip mines, vegetated fencerows, etc) to meet reproductive needs of the species. (7.3.2)		The reasons for declines are not completely understood. Pursue collection of ecological (breeding and winter) and reproductive data in Virginia as a path toward investigating geographic and temporal extent of limiting factors.
30	Antrostomus vociferus	Eastern whip-poor-will	Bird	Bird	III	b	Forests and Woodlands, Savannahs	No specific identified threats, see notes for more information,	/ /	/ /	Collaborate with the Atlantic Flyway in its 2024 reinvigoration of the Nightjar Survey Network in order to collect better population trend data.	Breeds in mixed woodlands usually near fields and other open areas.	Collaborate with the Atlantic Flyway in its 2024 reinvigoration of the Nightjar Survey Network in order to collect better population trend data for this and other eastern nightjar species. The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors. Research could include investigation of habitat characteristics, as well as roadside mortality and insect prey availability as drivers of declines. Coordinate with the Atlantic Flyway on potential upcoming nightjar research projects.
31	Contopus virens	Eastern Wood-Pewee	Bird	Bird	IV	b	Forests and Woodlands, Savannahs	8.2.2, 7.3.2,	Increased Grazing by Vertebrates / Vegetation Succession /	e.g., increased grazing by white-tailed deer and snow geese. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	This is a potential, but not known, threat. Investigate impacts of deer browsing on Pewee breeding populations as a function of deer density (8.2.2), This is a suspected, but not known, threat. Pursue multiple strategies to ensure adequate supply of open/edge habitat within forested habitats, as well as the development of forestry Best Management Practices, to meet reproductive needs of the species. (7.3.2)	Breeds in mature woodlands, urban shade trees, roadsides, woodlots, and orchards. They prefer deciduous forest but also live in open pine woodlands.	The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity to its wintering grounds in South America via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.
32	Spizella pusilla	Field Sparrow	Bird	Bird	IV	a	Forests and Woodlands, Shrublands, Savannas	7.3.2	Vegetation Succession / /	Natural vegetation succession causing habitat loss for species of early successional habitats. / /	This is a suspected, but not known, threat. Pursue multiple strategies to ensure adequate supply of early-successional conditions across habitat types (regenerating clearcuts, shrubby pastures, right-of-ways, abandoned fields, restored strip mines, vegetated fencerows, etc) to meet reproductive needs of the species. (7.3.2)	Breed in open habitat with low perches, such as abandoned agricultural fields and pastures, fencerows, road and forest edges, and openings in wooded areas. Occasionally found in Christmas tree farms, orchards, and nurseries.	The reasons for declines are not completely understood. Pursue collection of ecological (breeding and winter) and reproductive data in Virginia as a path toward investigating geographic and temporal extent of limiting factors.

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33	Sterna forsteri	Forster's Tern	Bird	Bird	II	b	Large Tidal Rivers, Non-Tidal Wetlands, Tidal Creeks and Rivers, Tidal Wetlands, Estuaries, Marine Nearshore, Urban Lands	11.1.1	Changes in Vegetation Communities / /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Address impacts of sea level rise as follows: 1. Develop, secure funding for, implement and evaluate a pilot project involving thin layer deposition of dredge material obtained from local navigational channels to increase the elevation of seaside and Chesapeake Bay *low* marshes that used to support Forster's Tern (FOTE) colonies, but no longer do so because of sea level rise and subsidence. 2. Evaluate the effectiveness of this technique and its impacts on the marsh hydrology and plant and wildlife communities over the long term. NOTE: This will benefit Saltmarsh Sparrow, Virginia Rail and other marsh nesting species. (11.1.1)	Nests in brackish and saltwater marshes typically on wracks of dead and occasionally on abandoned muskrat lodges and crab pots stored on marsh islands. Forages over open ocean and coastal inshore waters, and estuaries. Roosts on beaches, mudflats and on a variety of artificial structures, including those located in urban areas (e.g., docks, piers, pilings, etc.).	Other potential threats for which no achievable actions have been identified: 11.2.2 (salinity impacts on prey); 11.3.3 (temp impacts on prey); 11.5.2
34	Plegadis Falcinellus	Glossy Ibis	Bird	Bird	I	a	Riparian and Floodplains, Shorelines, Beaches and Dunes, Lakes, Tidal Wetlands, Artificial Impoundments	11.1.1, 6, 8.1.4	Changes in Vegetation Communities / Human Intrusions and Disturbance / Aquatic Plants	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / Threats from activities (unrelated to the use of biological resources) that disturb, alter, or destroy habitats and their species. /	Address loss of high marsh shrub habitat in marshes as follows: 1. Develop, secure funding for, implement and evaluate a pilot project involving thin layer deposition of dredge material obtained from local navigational channels to increase the elevation of seaside and Chesapeake Bay marshes that used to support wading bird colonies, including GLIB, but no longer do so because of the disappearance of salt tolorant shrubs e.g., *Iva frutescens, Baccharis halimifolia, Morella cerifera*) due to subsidence and frequent tidal inundation. 2. A second component of this project may include the planting of desired shrubs if reestablishment doesn't occur naturally. 3. Evaluate the effectiveness of this technique and its impacts on the marsh hydrology and plant and wildlife communities over the long term. NOTE: Glossy Ibis (GLIB) are very vulnerable to tidal inundation (and storm surges) because they tend to nest on the ground or just above the ground. (11.1.1), 1.Gain permission to post bird closure signs around key GLIB colonies that are located on unprotected private and public marshes and islands in the Chesapeake Bay. 2. Post bird closure signs around key GLIB colonies located on VMRC-owned seaside marshes that are vulnerable to human disturbance. 3. Work with CPOs to establish a law enforcement presence at these posted sites. (6), 1. Improve existing wading bird breeding habitat by conducting regular control of phragmites and other invasive plant species at coastal DWR WMAs with suitable GLIB breeding habitat. NOTE: this will benefit all nesting wading birds. (8.1.4)		Other potential threats for which no achievable actions have been identified: 11.5.2; 11.2.2 (salinity impacts on prey); 11.3.3 (temp impacts on prey)
35	Aquila chrysaetos	Golden Eagle (Winter)	Bird	Bird	I	a	Forests and Woodlands	3.3.2, 5.1.2, 9.4.2	Wind Farms / Trapping / Solid Lead	/ Harvesting of wild terrestrial or semi-aquatic animal species (e.g., beavers_ by trapping that is governed by management measures. Includes incidental killing, but animal control by trapping should be classified under “Management/control for terrestrial animals” (Threat 5.1.5). E.g., trapping of wild terrestrial or semi-aquatic animals for fur, meat, taxidermy, trophies, non-target birds or prey caught in traps. / Lead released into the environment in a solid form (e.g., pellets) from a source other than industrial effluents (Threat 9.2.6). E.g., lead from ammunition or fishing gear contaminating the environment, ammunitions from shooting ranges.	Model risk for high use wintering areas utilizing the Eastern Golden Eagle Working Group's 3D spatial dataset (3.3.2), Conduct outreach to fur trappers to minimize Golden Eagle by-catch through BMPs and to inform them of the exposed bait trapping regulation. (5.1.2), Conduct outreach to the deer hunting community about the negative impacts of spent ammunition fragments in offal piles and lost game. Encourge the voluntary use of non-lead ammunition and disposal of offal piles so they are not accessible to raptors and corvids. (9.4.2)		
36	Vermivora chrysoptera	Golden-winged Warbler	Bird	Bird	II	a	Shrublands	2.1.2, 7.3.2, 8.1.1	Perennial Cropping Systems / Vegetation Succession / Terrestrial Animals	Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Create/maintain a supply of high-quality old-field breeding habitat through coordination with partners on lands in public/protected ownership and via continued outreach to and engagement with private landowners with working lands, in order to address habitat loss/degredation via ecological succession, overgrazing by cattle, invasive species, and mechanical clearing (ex. mowing/bush-hogging) (2.1.2, 7.3.2, 8.1.1)		Continue surveys and monitoring to evaluate near- and long-term population trajectories within the species' major population centers (Highland/Bath County, Southwest Virginia), to assess the status of the species on public and protected lands, and to fill gaps in our knowledge of the species' distribution in Virginia, The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, and, via Southern Wings, further explore distribution and ecology on its wintering grounds in northern South America, as a path toward further investigating geographic and temporal extent of limiting factors.
37	Ammodramus savannarum	Grasshopper Sparrow	Bird	Bird	IV	b	Grasslands, Transportation Networks	2.1.2, 9.3.3,	Perennial Cropping Systems / Herbicides and Pesticides /	Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Coordinate with and support expansion of programs such as the Virginia Grassland Bird Initiative, which conduct research and provide financial incentives to private landowners to adopt BMPs to improve grassland bird productivity (2.1.2), Research the impacts of pesticides on prey base and impact on grassland bird communities (9.3.3)	Breed primarily in pastures and hayfields, but may also use airports, managed grasslands and other grassy areas.	The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.

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1	**Scientific_Name**	**Common_Name**	**Grouping**	**Type**	**Tier**	**COR**	**Habitats**	**Threat_Code**	**Threat_Description**	**Threat_Long**	**Actions**	**Working_Lands**	**Notes**
38	Dumetella carolinensis	Gray Catbird	Bird	Bird	IV	a	Shrublands, Urban Lands	7.3.2	Vegetation Succession / /	Natural vegetation succession causing habitat loss for species of early successional habitats. / /	This is a suspected, but not known, threat. Pursue multiple strategies to ensure adequate supply of early-successional conditions across habitat types (regenerating clearcuts, shrubby pastures, right-of-ways, abandoned fields, restored strip mines, shrubby wetlands, vegetated fencerows, etc) to meet reproductive needs of the species. (7.3.2)	Breeds in a variety of early successional habitats, including regenerating clearcuts, shrubby pastures, right-of-ways, abandoned fields, restored strip mines, shrubby wetlands, vegetated fencerows, etc, as well as in residential areas.	The reasons for declines are not completely understood. Due to differences in its migration status among Virginia's ecoregions (more populous along the coast in winter), investigate ecoregional population beeding trends within Virginia. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.
39	Butorides virescens	Green Heron	Bird	Bird	II	b	Forests and Woodlands, Riparian and Floodplains, Shorelines, Creeks and Rivers, Large Rivers, Tidal Headwater Streams, Tidal Creeks and Rivers, Large Tidal Rivers, Lakes, Ponds, Non-Tidal Wetlands, Tidal Wetlands, Estuaries, Urban Lands	No specific identified threats, see notes for more information,	/ /	/ /	Before any effective management can be done for this species, there is a need to develop and implement a survey design that captures a greater proportion of the Virginia breeding population, including those that occupy private properties in developed areas. Other potential threats for which no achievable actions have been identified: 1.1.1; 1.1.2; 8.2.5; 8.1.1 (predation by feral and domestic cats)	Nests in wooded residential areas near tidal and non-tidal ponds, lakes, rivers, marshes or estuaries.	1. Develop a predictive Green Heron (GRHE) breeding habitat model and map potential colony sites on undeveloped private lands and in urban and residential areas throughout Virginia's coastal plain. 2. Develop and implement a citizen science project designed to confirm the presence of GRHE colonies at these sites. 3. Using the information gathered from the first two actions, use a stratified sampling design to select GRHE colonies to be included in future coastwide colonial waterbird surveys that will yield an accurate GRHE population estimate. NOTE: GRHE nest widely thorughout the Coastal Plain, many on private lands in residential areas. Population estimates are inadequate to assess trends outside of the GRHE colonies that are surveyed regularly. Among the GRHE colonies that are surveyed regularly, GRHE have declined dramatically within the barrier island/lagoon system and on the Chesapeake Bay islands. Before any effective management can be done for this species, there is a need to develop and implement a survey design that captures a greater proportion of the Virginia breeding population, including those that occupy private properties in developed areas. Other potential threats for which no achievable actions have been identified: 1.1.1; 1.1.2; 8.2.5; 8.1.1 (predation by feral and domestic cats)
40	Gelochelidon nilotica	Gull-billed Tern	Bird	Bird	I	a	Shorelines, Beaches and Dunes, Tidal Wetlands, Marine Nearshore, Urban Lands Transportation Networks	11.1.1, 8.2.5, 1.2.1	Changes in Vegetation Communities / Increased Predation by Mesopredators / Commercial and Industrial Areas	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / e.g., racoons, striped skunks, foxes, coyotes. / industrial parks, manufacturing plants, offices, shopping centers, all military base facilities, power plants, seaports, shipyards, airports	Address impacts of sea level rise as follows: 1. Enhance existing nesting habitat by adding sand to increase elevation in low nesting areas prone to tidal inundation on key Gull-billed Tern (GBTE) nesting islands in the sea barrier island/ lagoon system and in the Chesapeake Bay. 2. Offset breeding habitat loss by placing beach compatible dredge material on existing or remnant shoals along the barrier island chain and in the Chesapeake Bay. 3. Begin designing, planning and securing funding for the creation of **new**, well-elevated nesting habitats in protected inshore areas that are less susceptible to nor'easters and storm surges. (11.1.1), 1. Continue to support mammalian (raccoons, foxes, coyotes) management efforts on barrier islands that support seabird breeding colonies, including GBTE rookeries. 2. Support and implement various form of avian predator management (e.g., audio deterrents, harrassment, effigies, lethal removal) on islands where seabird monitoring efforts indicate the need for the limited removal of gulls, corvids, great horned owls and/or other native predatory species. NOTE: this action will benefit ALL beach nesting seabirds breeding on the barrier islands. (8.2.5), For populations nesting in urban areas: 1. Continue to monitor, manage and maintain the temporary nesting habitat used by GBTE on barges adjacent to the Hampton Roads Bridge-Tunnel (HRBT) until the construction of a new nesting island has been completed. 2. Track the annual number of pairs and breeding success of GBTE (and other seabird species) utilizing the new nesting island which will be located in the vicinity of the HRBT. 3. Maintain suitable breeding habitat and provide sufficient law enforcement protection for breeding GBTE and other seabird species on the new nesting island over the long term. (1.2.1)	In Virginia, they nest on artifical islands and on barges in the Hampton Roads area adjacent to a major interstate highway. They forage primarily over beaches and salt marshes, where hawking for insects is often primary method of capture. They occasionally plunge-dive for fish in nearshore ocean waters and coastal inshore waters.	<u>Other potential threats for which no achievable actions have been identified</u>: 11.2.2 (salinity impacts on prey during the breeding season); 11.3.3 (temp impacts on prey); 11.5.2; 11.4.2
41	Ammodramus henslowii	Henslow's Sparrow	Bird	Bird	I	b	Grasslands	2.1.2, 9.3.3,	Perennial Cropping Systems / Herbicides and Pesticides /	Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Coordinate with and support expansion of programs such as the Virginia Grassland Bird Initiative, which conduct research and provide financial incentives to private landowners to adopt BMPs to improve grassland bird productivity (2.1.2), Research the impacts of pesticides on prey base and impact on grassland bird communities (9.3.3)		The species is rare in Virginia, and surveys to document breeding populations are integral to developing a broader conservation strategy. Continue supporting surveys and research through partners. Coordinate with partners to implement surveys at sites of known historic and recent occurrences.
42	Catharus guttatus	Hermit Thrush	Bird	Bird	III	b	Forests and Woodlands, Boreal Forests	11.1.1	Changes in Vegetation Communities / /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Ensure continued supply of suitable breeding habitat at high-elevation sites with which the species is associated, including supporting work by the Central Appalachian Spruce Restoration Initiative. Further investigate species' use of edges within forest interiors. (11.1.1)		Collect additional data on the breeding distribution of what is thought to be a relatively small population of this range-restricted species in Virginia, expanding upon data from the 2nd Virginia Breeding Bird Atlas, eBird reports and other previous survey efforts. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity (where within eastern United States does Virginia's Hermit Thrush winter) and winter ecology, as a path toward investigating geographic and temporal extent of limiting factors.

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1	**Scientific_Name**	**Common_Name**	**Grouping**	**Type**	**Tier**	**COR**	**Habitats**	**Threat_Code**	**Threat_Description**	**Threat_Long**	**Actions**	**Working_Lands**	**Notes**
43	Larus smithsonianus	Herring Gull	Bird	Bird	II	b	Shorelines, Beaches and Dunes, Tidal Creeks and Rivers, Large Tidal Rivers, Non-Tidal Wetlands, Tidal Wetlands, Estuaries, Marine Nearshore, Marine Offshore and Oceanic, Urban Lands, Transportation Networks	8.1.4	Aquatic Plants / /	/ /	1. Improve existing Herring Gull breeding habitat at key seaside and Chesapeake Bay nesting sites that are not occupied by listed species or other SGCN by conducting regular control of phragmites and other invasive plant species at these sites. (8.1.4)	In Virginia, known to nest on artifical islands in the Hampton Roads area adjacent to a major interstate highway. Forages at dumpsters, landfills, restaurants, parking lots and other urban areas where there are concentrations of refuse. In Virginia, known to nest on artifical islands in the Hampton Roads area adjacent to a major interstate highway.	Other potential threats for which no achievable actions have been identified: 8.2.5; 7.3.3; 11.5.2; 9.4.4
44	Eremophilia alpestris	Horned Lark	Bird	Bird	III	a	Grasslands, Glades and Barrens, Beaches and Dunes, Urban Lands, Transportation Networks, Mines	9.3.3	Herbicides and Pesticides / /	Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. / /	Research the impacts of pesticides on prey base and impact on grassland bird communities (9.3.3)	Breeds in open areas with bare ground and low grasses, including sand dunes, cultivated fields, and grasslands at airports, reclaimed mine sites and residential areas.	The reasons for declines are not completely understood. Pursue collection of ecological (breeding and winter) and reproductive data in Virginia as a path toward investigating geographic and temporal extent of limiting factors.
45	Geothlypis formosa	Kentucky Warbler	Bird	Bird	III	b	Forests and Woodlands, Riparian and Floodplains, Non-tidal Wetlands	5.3	Logging and Wood Harvesting / /	Harvesting trees/other forest species in natural environments for timber or fiber outside of plantations (Threat 2.2). Includes cutting and the use of machinery, as well as wood storage and debris management, excluding their transport (Threat 4.1) and associated erosion (Threat 9.3) / /	Better information is needed on forestry practices that promote appropriate vegetation structure and conditions that result in suitable Kentucky Warbler habitat; build on previous studies and coordinate on development of state-level or regional BMPs		The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.
46	Rallus elegans	King Rail	Bird	Bird	I	b	Tidal Wetlands, Non-tidal Wetlands	11.1.1, 11.2.2, 8.1.4	Changes in Vegetation Communities / Changes in salinity / Aquatic Plants	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Address impacts of sea level rise as follows: 1. purchase and conserve properties in marsh migration zones where upland habitats have a high probablity of transforming into suitable King Rail (KIRA) breeding habitat. 2. Manage WMAs that encompass suitable marsh habitats for breeding KIRA (ex. Princess Anne WMA). 3. Conduct regular KIRA occupancy and breeding productivity monitoring on DWR WMAs that are managed for marsh-nesting birds to evaluate the effectiveness of management strategies. (11.1.1, 11.2.2), Conduct phragmites control in tidal and nontidal freshwater marshes in areas of known KIRA occupancy, and monitor effects of control efforts on KIRA occupancy and abundance.(8.1.4)		Conduct breeding season surveys to collect data on occupancy, abundance and distribution of KIRA in tidal and non-tidal freshwater marshes so as better define areas of importance for the species.
47	Leucophaeus atricilla	Laughing Gull	Bird	Bird	III	b	Shorelines, Beaches and Dunes, Tidal Wetlands, Estuaries, Urban Lands, Transportation Networks	11.1.1	Changes in Vegetation Communities / /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Address impacts of sea level rise as follows: 1. Develop, secure funding for, implement and evaluate a pilot project involving thin layer deposition of dredge material obtained from local navigational channels to increase the elevation of seaside and Chesapeake Bay marshes that used to support Laughing Gull (LAGU) colonies, but no longer do so because of sea level rise and subsidence. 2. Once restoration efforts have been completed, deploy social attraction techniques (e.g., decoys, audio lures) to attract LAGU to the restored sites. 3. Evaluate the effectiveness of action # 1 and its impacts on the marsh hydrology and plant and wildlife communities over the long term. 4. Purchase and conserve properties in marsh migration zones where upland habitats have a high probablity of transforming into suitable LAGU breeding habitat (NOTE: This action will benefit FOTE, VIRA and other marsh nesting species). 2. Once habitat transformation has occurred, deploy social attraction techniques (e.g., decoys, audio lures) to attract LAGU to these new sites. (11.1.1)	Breeds on barrier islands with low vegetated dunes, marsh islands in the Chesapeake Bay, and in saltwater marshes in the seaside lagoon system. Also breeds and on artificial islands and barges in the Hampton Roads area adjacent to a major interstate highway. Forages along bays and estuaries, near harbors, fishing operations, and ag fields and landfills near the coast.	Other potential threats for which no achievable actions have been identified: 11.5.1; 11.5.2
48	Empidonax minimus	Least Flycatcher	Bird	Bird	II	a	Forests and Woodlands	5.3	Logging and Wood Harvesting / /	Harvesting trees/other forest species in natural environments for timber or fiber outside of plantations (Threat 2.2). Includes cutting and the use of machinery, as well as wood storage and debris management, excluding their transport (Threat 4.1) and associated erosion (Threat 9.3) / /	This is a suspected, but not known, threat. Pursue research of sensitivity to habitat change and forest management, which is poorly understood, although it appears that maintaining mid-successional deciduous forests is a valuable conservation strategy. (5.3)		The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	**Scientific_Name**	**Common_Name**	**Grouping**	**Type**	**Tier**	**COR**	**Habitats**	**Threat_Code**	**Threat_Description**	**Threat_Long**	**Actions**	**Working_Lands**	**Notes**
49	Sternula antillarum	Least Tern	Bird	Bird	III	a	Shorelines, Beaches and Dunes, Tidal Creeks and Rivers, Large Tidal Rivers, Lakes, Ponds, Tidal Wetlands, Estuaries, Marine Nearshore, Urban Lands	11.1.1, 8.2.5, 1.2.1	Changes in Vegetation Communities / Increased Predation by Mesopredators / Commercial and Industrial Areas	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / e.g., racoons, striped skunks, foxes, coyotes. / industrial parks, manufacturing plants, offices, shopping centers, all military base facilities, power plants, seaports, shipyards, airports	Address impacts of sea level rise as follows: 1. Enhance existing nesting habitat by adding sand to increase elevation in low nesting areas prone to tidal inundation on key seaside Least Tern (LETE) nesting islands and on historic nesting beaches in the Chesapeake Bay, including Grandview Nature Preserve in Hampton, VA. 2. Offset breeding habitat loss by placing beach compatible dredge material on existing or remnant shoals along the barrier island chain and in the Chesapeake Bay. 3. Begin designing, planning and securing funding for the creation of **new**, well-elevated nesting habitats in protected inshore areas that are less susceptible to nor'easters and storm surges. (11.1.1), 1. Continue to support mammalian (raccoons, foxes, coyotes) management efforts on barrier islands that support the majority of VA's LETE breeding population. 2. Support and implement various form of avian predator management (e.g., audio deterrents, harrassment, effigies, lethal removal) on islands where seabird monitoring efforts indicate the need for the limited removal of gulls, corvids, great horned owls and/or other native predatory species. (8.2.5), For populations nesting in urban areas: 1. Continue to support the US Army Corps of Engineers' (USACOE) monitoring, management and protection of breeding LETE at the Craney Island Dredged Material Management Area (CIDMMA) in Portsmouth, VA. 2. Assist the USACOE with updating and implementing the CIDMMA Management Plan. (1.2.1)	Nests on the barrier islands, on shell rakes in the seaside lagoon system and and occasionally on rooftops in the Hampton Roads area and other urban centers. Also nests on an urban dredge material management site. Forages over ocean nearshore waters, inlets, coastal bays, estuaries, tidal rivers, and occasionally over freshwater ponds.	Other potential threats for which no achievable actions have been identified: 3.3.2; 6.0 (human disturbance on nesting beaches); 7.3.1; 8.1.1; 8.2.5; 8.4.2; 11.2.2; 11.3.3 (gradual change in ocean temperatures that is influencing the distribution and abundances of forage fish) 11.4.2; 11.5.2
50	Egretta Caerulea	Little Blue Heron	Bird	Bird	I	a	Riparian and Floodplains, Shorelines, Beaches and Dunes, Tidal Wetlands, Non-Tidal Wetlands, Artificial Impoundments	11.1.1, 6, 6.3.1	Changes in Vegetation Communities / Human Intrusions and Disturbance / Research Activities	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / Threats from activities (unrelated to the use of biological resources) that disturb, alter, or destroy habitats and their species. / Research activities that are governed by management measures that can affect species by causing disturbance, by collecting individual, or by degrading the environment. E.g., research fisheries requiring mortality, trampling by research teams.	Address loss of high marsh shrub habitat in marshes as follows: 1. Develop, secure funding for, implement and evaluate a pilot project involving thin layer deposition of dredge material obtained from local navigational channels to increase the elevation of seaside and Chesapeake Bay marshes that used to support wading bird colonies, including Little Blue Heron (LBHE), but no longer do so because of the disappearance of salt tolorant shrubs (e.g., Iva frutescens, Baccharis halimifolia, Morella cerifera) due to subsidence and frequent tidal inundation. 2. A second component of this project may include the planting of desired shrubs if reestablishment doesn't occur naturally. 3. Evaluate the effectiveness of this technique and its impacts on the marsh hydrology and plant and wildlife communities over the long term. (11.1.1), 1.Gain permission to post bird closure signs around key LBHE colonies that are located on unprotected private and public marshes and islands in the Chesapeake Bay. 2. Post bird closure signs around key LBHE colonies located on VMRC-owned seaside marshes that are vulnerable to human disturbance. 3. Work with CPOs to establish a law enforcement presence at these posted sites. (6), 1. Design, implement and evaluate a more accurate breeding wading bird survey methodology that also avoids or minimizes observer disturbance. The current adult flush count method has never been tested for accuracy and is highly susceptible to observer bias. (6.3.1)		Other potential threats for which no achievable actions have been identified: 11.5.2; 11.2.2; 11.3.3 (temp impacts on prey)
51	Lanius ludovicianus	Loggerhead Shrike	Bird	Bird	I	a	Shrublands	2.1.2	Perennial Cropping Systems / /	Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover. / /	Address loss and degradation of suitable shrubby pasture habitat due to intensification of livestock farming on private lands by developing shrike habitat Best Management Practices (BMP) and engaging with land managers, landowners and farmers to increase awareness of shrike habitat requirements and to incentivize maintenance of existing habitat; work with partners to maintain and expand existing suitable habitat on public and conservation lands (2.1.2)	Prefers areas of grassland with small trees, fences, woody vegetation or hedgerows. Thorny shrubs are used for nesting.	Continue coordination with Loggerhead Shrike Working Group (WG) to 1. develop U.S. Action Plan based on final Conservation Plan; and 2. to fill knowledge gaps pertaining to demographics (ex. quantifying mortality vs. dispersal), prey availability, disease, conspecific attraction, and habitat elements potentially limiting shrike occupancy of sites at the landscape level [ex. availability of impalement structures])
52	Limosa fedoa	Marbled Godwit (winter)	Bird	Bird	IV	a	Shorelines, Beaches and Dunes, Tidal Creeks and Rivers, Tidal Wetlands	11.1.1	Changes in Vegetation Communities / /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Address impacts of sea level rise as follows:1. Increase the elevation of mudflats used by foraging and roosting Marbled Godwit (MAGO) that are in danger of being lost to sea level rise through the thin layer deposition of dredge material obtained from adjacent navigational channels. 2. Evaluate the effectiveness of this technique by conducting before and after shorebird surveys to quantify differences in shorebird use and by conducting before and after benthic invertebrate surveys and sampling to measure differences in prey types, density and availability. 3. Enhance and increase MAGO roosting habitat in the seaside marshes by increasing the elevation and footprint of eroding shell rakes. (11.1.1)		Other potential threats for which no achievable actions have been identified: 7.3.3; 8.1.1 (introduced PEFA impacts); 8.4.2; 9.2.1; 11.4.2 (drought impacts on prey availability); 11.2.2 (salinity shift impacts on prey); 11.3.3 temp change impacts on prey); 11.5.2
53	Cistothorus palustris	Marsh Wren	Bird	Bird	III	b	Non-Tidal Wetlands, Tidal Wetlands	11.1.1, 8.1.4,	Changes in Vegetation Communities / Aquatic Plants /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Conduct the following activities as conservation measures for Marsh Wren (MAWR) marsh habitat threatened by sea level rise: 1. purchase and conserve properties in marsh migration zones where upland habitats have a high probablity of transforming into suitable MAWR breeding habitat. 2. Manage coastal WMAs that encompass suitable marsh habitats for breeding MAWR. 3. Conduct regular MAWR surveys as part of secretive marsh bird occupancy monitoring on DWR WMAs that are managed for marsh-nesting birds to evaluate the effectiveness of management strategies. (11.1.1), 1. Improve existing MAWR breeding habitat by conducting regular control of phragmites and other invasive plant species at coastal DWR WMAs with suitable MAWR breeding habitat. 8.1.4)		Pursue detailed investigation of migratory status of Virginia MAWR, which may be partial migrants, to determine whether potential threats should be investigated on wintering grounds outside of Virginia
54	Ammodramus nelsoni	Nelson's Sparrow (winter)	Bird	Bird	III	b	Tidal wetlands	11.1.1, 8.1.4,	Changes in Vegetation Communities / Aquatic Plants /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Address impacts of sea level rise as follows: 1. purchase and conserve properties in marsh migration zones where upland habitats have a high probablity of transforming into suitable Nelson's Sparrow (NESP) wintering habitat. 2. Manage coastal WMAs that encompass suitable marsh habitats for winterig NESP. 3. Conduct regular SALS occupancy and abundance monitoring on DWR WMAs that are managed for NESP to evaluate the effectiveness of management strategies. (11.1.1), 1. Improve existing NESP wintering habitat by conducting regular control of phragmites and other invasive plant species at coastal DWR WMAs with suitable NESP breeding habitat. (8.1.4)		Conduct periodic monitoring (ex. every 5-10 years) at a network of sites to evaluate population trend/stability

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	**Scientific_Name**	**Common_Name**	**Grouping**	**Type**	**Tier**	**COR**	**Habitats**	**Threat_Code**	**Threat_Description**	**Threat_Long**	**Actions**	**Working_Lands**	**Notes**
55	Colinus virginianus	Northern Bobwhite	Bird	Bird	III	a	Grasslands, Shrublands, Savannahs, Glades and Barrens	7.1.2, 7.3.2, 2.2.1	Suppression in the Fire Regime / Vegetation Succession / Plantation of Pulpwood	Intervention aimed at preventing and putting out forest fire (fire management). E.g., putting out forest fires, controlled burning, creating firebreaks and trenches, and other measures. / Natural vegetation succession causing habitat loss for species of early successional habitats. / Cultivation of hybrid poplars and other species that are used for pulp production.	Recent increased restrictions in particulate matter for air quality, time of year fire restrictions due to bats, and increasing human population make prescribed fire more and more difficult. Need continued lobbying for exceptions for properly planned prescribed fire and more incentives to conduct fire, and more education about its value. (7.1.2), More and more open, early-successional lands are being planted to trees, mainly commercial pine trees. There should be close scrutiny of trees being planted for profit in the name of carbon sequestration and timber industry support. Incentives should be increased to maintain and increase early-succession plant communities which include the most endangered habitat in the state - native grasslands. (7.3.2), Increases in commercial pine tree growth rates have made growing pine pulpwood more and more intense. New generation trees close canopy faster, shading out early-succession vegetation much quicker, and reducing the amount of time a regenerating clear-cut is useful for early succession wildlife species. Efforts should increase to incentivize slower growing, more natural pine ecosystems like short-leaf and long-leaf pine. More education is needed for the landowners about these pine types, and federal incentives programs should cease to incentivize loblolly pine. (2.2.1)	Nest in open grasslands, along old fence edges, and old croplands. Species does best with a patchwork of woodland edges, grassland and croplands.	
56	Colaptes auratus	Northern Flicker	Bird	Bird	III	b	Forests and Woodlands, Savannahs, Urban Lands	No specific identified threats, see notes for more information,	/ /	/ /	Pursue research on potential effects of competition for cavities with European Starlings, declining availability of suitable nest-cavity substrate (snags, dead limbs, and live trees with heart rot), and pesticide application on golf courses, agricultural fields, and suburban lawns.	Breeds in a wide variety of open habitats with trees, including open woodlands and pine savannas, forest edges, open fields with scattered trees, as well as city parks and suburbs.	The reasons behind the decline of some populations of the Northern Flicker are not well understood. Pursue research on potential effects of competition for cavities with European Starlings, declining availability of suitable nest-cavity substrate (snags, dead limbs, and live trees with heart rot), and pesticide application on golf courses, agricultural fields, and suburban lawns.
57	Moras bassanus	Northern Gannet (transient/winter)	Bird	Bird	IV	a	Tidal Creeks and Rivers, Large Tidal Rivers, Estuaries, Marine Nearshore, Marine Offshore and Oceanic	3.3.2, 8.4.2,	Wind Farms / Viral Pathogens /	/ e.g., ranavirus in amphibians, rabies in raccoons. /	1. Support tracking studies to determine if migrant and wintering Northern Gannet (NOGA) forage in the foot print of Offshore Wind (OSW) leases in the central Atlantic Wind Energy Areas *before* facilities are fully constructed and operational. 2. support additional tracking studies to determine if migrant and wintering NOGA actively avoid OSW facilities *after* they become fully operational. (3.3.2), 1. Develop a rapid response plan for seabird Highly Pathogenic Avian Influenza and other disease-related mortality/morbidity events that occur during the breeding season. NOTE: this action is intended for all seabird species that breed in Virginia. (8.4.2)		Highly pathogenic avian influenza (HPAI) caused the worst NOGA mass-mortalities in the northeast Atlantic between April–September 2022 with tens of thousands of casualties documented in breeding colonies on both sides of the Atlantic during this short period of time. At the same time, HPAI was detected among various species of terns in US colonies primarily in the northeast and the great lakes. While NOGA do not breed in VA, the Commonwealth supports a significant wintering population that often forage in dense flocks in nearshore waters and in the lower Chesapeake Bay. Other potential threats for which no achievable actions have been identified: 9.4.4; 9.2.1; 3.1.2; 5.4.2; 11.2.1; 11.2.2; 11.3.3; 11.3.4
58	Circus cyaneus	Northern Harrier (winter)	Bird	Bird	III	b	Grasslands, Shrublands, Glades and Barrens, Riparian and Floodplains, Shorelines, Beaches and Dunes, Non-tidal Wetlands, Tidal Wetlands, Estuaries,	1.1.1, 2.1.2, 9.3.3	Dense Housing and Urban Areas / Perennial Cropping Systems / Herbicides and Pesticides	Medium- to high-density development for residential use and buildings for related services. Allows very little to no maintenance of ecological functions. E.g., urban areas, suburbs, villages, schools, libraries, seniors' housing, hospitals / Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides.	Promote conservation and agricultural land easements, agricultural subsidy programs, and local land use planning efforts to mitigate development impacts (1.1.1), Promote conservation and agricultural land easements, agricultural subsidy programs, and local land use planning efforts to mitigate development impacts (2.1.2), Research the impacts of neonicotinoids on prey base and impact on Northern Harrier health/mortatality (9.3.3)	Breeds in open marshy, grassland and old fields. Winter in dunes, large fields, crop fields, estuaries, and floodplains.	
59	Mimus polyglottos	Northern Mockingbird	Bird	Bird	IV	a	Shrublands, Urban Lands	7.3.2	Vegetation Succession / /	Natural vegetation succession causing habitat loss for species of early successional habitats. / /	This is a suspected, but not known, threat. Pursue multiple strategies to ensure adequate supply of early-successional conditions across habitat types to meet reproductive needs of the species. (7.3.2)	Breeds in open habitats with scattered shrubs and small trees, including shrubby pastures, old fields and other early successional habitat, as well as residential areas including parks.	The reasons for declines are not completely understood. Pursue collection of ecological (breeding and winter) and reproductive data in Virginia as a path toward investigating geographic and temporal extent of limiting factors.
60	Stelgidopteryx serripennis	Northern Rough-winged Swallow	Bird	Bird	III	c	Grasslands, Shrublands, Glades and Barrens, Riparian and Floodplains, Shorelines, Urban Lands, Transportation Networks	No specific identified threats, see notes for more information,	/ /	/ /	Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects.	Nests in burrows created by other species, including kingfishers and Bank Swallows, in clay, sand, or gravel banks, typically near water. May also nest in crevices in bridges and buildings. Often nest near Bank Swallow colonies, as a single pair or in small groups.	The reasons for declines are not well understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects.
61	Falco peregrinus	Peregrine Falcon	Bird	Bird	I	a	Cliff and Talus, Tidal Wetlands, Urban Lands, Transportation Networks, Mines	6	Human Intrusions and Disturbance / /	Threats from activities (unrelated to the use of biological resources) that disturb, alter, or destroy habitats and their species. / /	Continue coordination with VDOT and other partners to minimize impact of construction, maintenance and repair to nesting pairs on artificial structures including bridges, buildings, powerplants and other substrates; continue coordination with rock climbing advocacy groups and public agencies to implement cliff closures to avoid impacts to pairs nesting on cliff faces (6) continue occupancy and reproductive monitoring of known occupied sites and conduct surveys of sites of unknown occupancy (with an emphasis on natural cliff faces and on quarries), in order to monitor the trajectory of this small breeding population as it grows toward recovery	In Virginia nests on cliff faces, quarries and a variety of artificial structures (hack towers, hi-rise buildings, industrial smokestacks, bridges, etc) within open landscapes or that include open areas for hunting.	

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	**Scientific_Name**	**Common_Name**	**Grouping**	**Type**	**Tier**	**COR**	**Habitats**	**Threat_Code**	**Threat_Description**	**Threat_Long**	**Actions**	**Working_Lands**	**Notes**
62	Charadrius melodus	Piping Plover	Bird	Bird	I	a	Shorelines, Beaches and Dunes, Tidal Wetlands	11.1.1, 7.3.2, 8.2.5	Changes in Vegetation Communities / Vegetation Succession / Increased Predation by Mesopredators	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / Natural vegetation succession causing habitat loss for species of early successional habitats. / e.g., racoons, striped skunks, foxes, coyotes.	Address impacts of sea level rise as follows: 1. Enhance existing nesting habitat by adding sand/shell mix to increase elevation in low nesting areas prone to tidal inundation on key Piping Plover (PIPL) nesting islands. 2. Offset habitat loss by placing beach compatible dredge material on existing or remnant shoals along the barrier island chain. 3. Begin designing, planning and securing funding for the creation of **new**, well-elevated nesting habitats in protected inshore areas that are less susceptible to nor'easters and storm surges. NOTE: These measures will also benefit nesting American Oystercatcher and Wilson's Plover.(11.1.1), 1.Create, monitor and evaluate corridors between nesting and brood foraging areas in areas where vegetation (primarily S. patens) impedes chick access to backside mudflats by mechanically removing vegetation along a line that avoids dunes and other natural features. 2. Increase suitable PIPL nesting habitat (i.e., sparsely vegetated washover flats and berm) by mechanically removing vegetation from key plover nesting areas, especially where predatory gulls have begun nesting in the vegetation. 3. If actions 1 and 2 prove to be successful, maintain the corridors and keep nesting areas sparely vegetated by mechanically or manually removing vegetation on an as-needed basis. (7.3.2), 1. Continue to support mammalian (raccoons, foxes, coyotes) management efforts on barrier islands that support the majority of VA's PIPL breeding population. 2. Support and conduct various forms of avian predator management (e.g., audio deterrents, harrassment, effigies, lethal removal) on islands where plover productivity monitoring efforts indicate the need for the limited removal of gulls, corvids, great horned owls and/or other predatory species. 3. Continue to monitor ghost crab activity around PIPL nests and engage in limited removal of crabs if the data support such an action. (8.2.5)		
63	Setophaga discolor	Prairie Warbler	Bird	Bird	IV	a	Forests and Woodlands, Shrublands, Savannas,	7.3.2	Vegetation Succession / /	Natural vegetation succession causing habitat loss for species of early successional habitats. / /	This is a suspected, but not known, threat. Pursue multiple strategies to ensure adequate supply of early-successional conditions across habitat types (regenerating clearcuts, open pine savannas,shrubby pastures, right-of-ways, abandoned fields, restored strip mines, etc) to meet reproductive needs of the species. (7.3.2)		The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.
64	Calidris maritima	Purple Sandpiper (transient)	Bird	Bird	IV	b	Shorelines, Tidal Wetlands, Estuaries	No specific identified threats, see notes for more information,	/ /	/ /	Conduct investigations to better address the species' habitat and foraging requirements.		Purple Sandpiper in Virginia typically occur on groins, revetments and other artificial rocky structure, but little is knows about their habitat needs and diet. Conduct investigations to better address the species' habitat and foraging requirements. Potential threats for which no achievable actions have been identified: 8.4.2; 9.2.1; 11.2.2 (salinity shift impacts on prey); 11.3.3 (temp change impacts on prey)
65	Calidris canutus rufus	Red Knot (transient)	Bird	Bird	I	a	Shorelines, Tidal Wetlands, Estuaries	8.2.5, 3.3.2, 11.1.1	Increased Predation by Mesopredators / Wind Farms / Changes in Vegetation Communities	e.g., racoons, striped skunks, foxes, coyotes. / / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching.	1. Fund research that will map Red Knot (REKN) disturbance exposure risk from breeding Peregrines Falcon (REKN's primary avian predator) by tracking where breeding falcons are hunting and comparing these locations to known migrant REKN concentration areas. 2. Use the results from the aforementioned study to inform management decisions for specific Eastern Shore falcon breeding sites. NOTE: This research will also help assess the effect breeding falcons have on other migrant shorebirds and breeding shorebirds and seabirds. (8.2.5), 1.Require research that accurately assesses REKN collision risks associated with offshore wind turbines through the state permitting process. 2. Promote and participate in the development of a regional Offshore Wind (OSW) avian conpensatory mitigation program to ensure that OSW development impacts on listed REKN, PIPL, and Roseate Terns as well as other key SGCN are adequately monitored across multiple spatial scales using the best methods and latest technologies. (3.3.2), Address impacts of sea level rise as follows: 1. Offset stopover habitat loss by regularly placing beach compatible dredge material on existing or remnant shoals in the barrier island/lagoon system and in the Chesapeake Bay (note: this will also help protect and perhaps increase the elevations of adjacent marshes and mudflats). 2. Increase shorebird stopover foraging habitat in VA by enhancing existing and creating new mudflats in the Chesapeake Bay through the thin layer deposition of compatible dredge material obtained from local navigational channels. (11.1.1)		<u>Other potential threats for which no achievable actions have been identified</u>: 9.2.1; 11.4.2 (drought impacts on prey availability); 11.2.2 (salinity shift impacts on prey); 11.5.1 (pH impacts on prey); 11.3.3 (temp impacts on prey)
66	Picoides borealis	Red-cockaded Woodpecker	Bird	Bird	I	a	Forests and Woodlands, Savannahs	7.1.2, 7.3.2,	Suppression in the Fire Regime / Vegetation Succession /	Intervention aimed at preventing and putting out forest fire (fire management). E.g., putting out forest fires, controlled burning, creating firebreaks and trenches, and other measures. / Natural vegetation succession causing habitat loss for species of early successional habitats. /	Maintain/expand near-term and long-term habitat supply on Big Woods WMA, Flippo-Gentry WMA, Piney Grove Preserve, Great Dismal Swamp National Wildlife Refuge and other stragegic sites via management for mature open pine savanna. (7.1.2, 7.3.2)		Continue population and reproductive monitoring at Piney Grove Preserve/Big Woods Wildlife Management Area and Great Dismal Swamp National Wildlife Refuge to track demographic response to management, to address management needs at the group level (including cavity supply, cavity competitors and nest predators) and to ensure that this small population continues on an upward trajectory. Continue cavity tree/cavity inventory monitoring. Continue using established management techniques (ex. artificial cavity provisioning and maintenance, recruitment cluster creation) to further expand the population.

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	**Scientific_Name**	**Common_Name**	**Grouping**	**Type**	**Tier**	**COR**	**Habitats**	**Threat_Code**	**Threat_Description**	**Threat_Long**	**Actions**	**Working_Lands**	**Notes**
67	Gavia stellata	Red-throated Loon (winter)	Bird	Bird	IV	b	Large Tidal Rivers, Estuaries, Marine Nearshore	3.3.2, 8.4.2,	Wind Farms / Viral Pathogens /	/ e.g., ranavirus in amphibians, rabies in raccoons. /	1. Support tracking studies to determine if migrant and wintering Red-throated Loon (RTLO) forage in the foot print of Offshore Wind (OSW) leases in the central Atlantic Wind Energy Areas *before* facilities are fully constructed and operational. 2. support additional tracking studies to determine if migrant and wintering RTLO actively avoid OSW facilities *after* they become fully operational. (3.3.2), 1. Develop a rapid response plan for seabird Highly Pathogenic Avian Influenza and other disease-related mortality/morbidity events that occur during the breeding season. NOTE: this action is intended for all seabird species that breed in Virginia. (8.4.2)		Other potential threats for which no achievable actions have been identified: 9.4.4; 9.2.1; 3.1.2; 5.4.2; 11.2.1; 11.2.2; 11.3.3; 11.3.4
68	Agelaius phoeniceus	Red-winged Blackbird	Bird	Bird	IV	a	Grasslands,Non-tidal Wetlands, Tidal Wetlands,	5.1.5, 11.1.1, 2.1.2	Management/Control of Terrestrial Animals / Changes in Vegetation Communities / Perennial Cropping Systems	Deliberately killing individuals of a terrestrial species for human gain that is governed by management measures. E.g., cormorant culling. / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover.	Evaluate the roles of seed crop damage control programs and roost dispersal programs on population decline of the species(5.1.5), Conduct the following activities for higher-tiered, marsh-nesting avian SGCN, which would in turn benefit marsh-nesting populations of Red-winged Blackbird threatened by sea level rise: 1. purchase and conserve properties in marsh migration zones where upland habitats have a high probablity of transforming into suitable breeding habitat. 2. Manage coastal WMAs that encompass suitable marsh habitats for breeding marsh birds. 3. Monitor as part of regular secretive marsh bird occupancy and breeding productivity monitoring on DWR WMAs that are managed for marsh-nesting birds to evaluate the effectiveness of management strategies. (11.1.1), Coordinate with and support expansion of programs such as the Virginia Grassland Bird Initiative, which conduct research and provide financial incentives to private landowners to adopt BMPs to improve grassland bird productivity (2.1.2)	Breed in fresh or saltwater marshes or in vegetated pond edges. Winter in ag fields, pastures and grasslands.	
69	Bonasa umbellus	Ruffed Grouse	Bird	Bird	III	a	Forests and Woodlands, Grasslands, Shrublands	7.3.2, 8.4.2, 11.4.1	Vegetation Succession / Viral Pathogens / Overabundant Rains	Natural vegetation succession causing habitat loss for species of early successional habitats. / e.g., ranavirus in amphibians, rabies in raccoons. /	Increase active management of forested lands on public and private lands focused at higher elevations (>1,800 ft elevation) specifically west of the Blue Ridge Mountains. Educate the public on the benefits of young forest habitats for Ruffed Grouse (RUGR) and young forest associated species. (7.3.2), Threat is suspected for West Nile Virus, further evaluation of the effects of the virus on RUGR should be implemented. (8.4.2), Threat is suspected for changes in precipitation in relation to nesting and brood rearing season. Further evaluation is needed to determine if climatic impacts are changing or limiting grouse productivity. (11.4.1)	Five basic cover types required: conifers, mixed conifers and hardwoods, hardwoods, brush, and open fields. Breed and winter in deciduous and mixed hardwood pine forests with brushy, cutover and opens areas important for broods and foraging.	
70	Euphagus carolinus	Rusty Blackbird (winter)	Bird	Bird	IV	c	Forests and Woodlands, Non-tidal Wetlands, Urban Lands	5.3, 7.2.5, 11.1.1	Logging and Wood Harvesting / Drainage in Forest Environments / Changes in Vegetation Communities	Harvesting trees/other forest species in natural environments for timber or fiber outside of plantations (Threat 2.2). Includes cutting and the use of machinery, as well as wood storage and debris management, excluding their transport (Threat 4.1) and associated erosion (Threat 9.3) / Construction and maintenance of channels that drain surface waters in forest environments. Excludes erosion/sedimentation that is associated with this drainage system (Threat 9.3.2). / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching.	The 2014 Management Plan for the Rusty Blackbird (RUBL) in Canada identifes conversion of forested wetlands on its wintering grounds in the southern United States as the most significant factor contributing to past RUBL population declines. Loss and degradation of forested wetlands may occur through timber harvests, modifications to hydological regimes, and through sea level rise and salt water intrusion. These are suspected, but not known, threats in Virginia. Work to mitigate these potential threats through protection and conservation of forested wetlands, both public and private. Add RUBL winter habitat requirements into forested wetland mitigation prescriptions. (5.3, 7.2.5, 11.1.1)	Winter primarily in forested wetlands, but may make use of flooded fields and open upland areas near preferred sources of food such as oak mast.	Expand inland Motus network to support collection of tracking data via Rusty Blackbird nanotag projects in the northeastern U.S., in order to document migratory routes, stopover habitat and migratory connectivity to breeding populations.
71	Ammodramus caudacutus	Saltmarsh Sparrow	Bird	Bird	II	a	Tidal wetlands	11.1.1, 8.1.4,	Changes in Vegetation Communities / Aquatic Plants /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Address impacts of sea level rise as follows: 1. purchase and conserve properties in marsh migration zones where upland habitats have a high probablity of transforming into suitable Saltmarsh Sparrow (SALS) breeding habitat. 2. Manage coastal WMAs that encompass suitable marsh habitats for breeding SALS. 3. Conduct regular SALS occupancy and breeding productivity monitoring on DWR WMAs that are managed for SALS to evaluate the effectiveness of management strategies. NOTE: This benefit Forster's Tern, Laughing Gull and other marsh nesting species. (11.1.1), 1. Improve existing SALS breeding habitat by conducting regular control of phragmites and other invasive plant species at coastal DWR WMAs with suitable SALS breeding habitat. NOTE: this will benefit all marsh nesting birds. (8.1.4)		Other potential threats for which no achievable actions have been identified: 8.2.5; 11.5.2; 11.3.4

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1	**Scientific_Name**	**Common_Name**	**Grouping**	**Type**	**Tier**	**COR**	**Habitats**	**Threat_Code**	**Threat_Description**	**Threat_Long**	**Actions**	**Working_Lands**	**Notes**
72	Calidris alba	Sanderling (winter)	Bird	Bird	IV	a	Shorelines, Beaches and Dunes, Tidal Wetlands, Urban Lands	7.3.3, 11.1.1,	Natural Erosion and Sedimentation / Changes in Vegetation Communities /	Removal, transport and deposition of sediments that is caused by natural erosional processes. To be distinguished from the transport of sediments that is associated with tides (Threat 4.3.1), or by drainage systems in agriculture (Threat 7.2.5) and forestry (Threat 7.2.6). / Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	Address impacts of natural erosion and sea level rise as follows: 1. Enhance existing stopover and wintering habitat by placing beach compatible dredge material along shorelines and on existing or remnant spits and shoals in the seaside barrier island complex and in the Chesapeake Bay. (7.3.3, 11.1.1)	During winter forages mostly along ocean and inshore intertidal shorelines, and to a lesser extent on tidal mudflats. Sanderlings are often found foraging along intertidal shorelines in urban areas. Roosts on sandy beaches and spits along in urban areas, along the barrier island chain, and on Chesapeake Bay islands.	Other potential threats for which no achievable actions have been identified: 7.3.3; 8.4.2; 9.2.1; 11.4.2 (drought impacts on prey availability); 11.2.2 (salinity shift impacts on prey); 11.3.3 temp change impacts on prey); 11.5.2
73	Passerculus sandwichensis	Savannah Sparrow	Bird	Bird	II	a	Grasslands, Transportation Networks	2.1.2, 9.3.3,	Perennial Cropping Systems / Herbicides and Pesticides /	Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Coordinate with and support expansion of programs such as the Virginia Grassland Bird Initiative, which conduct research and provide financial incentives to private landowners to adopt BMPs to improve grassland bird productivity (2.1.2), Research the impacts of pesticides on prey base and impact on grassland bird communities (9.3.3)	Breed most commonly in the western part of the state, primarily in pastures and hayfields, but may also use airports and other grassy areas.	The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.
74	Passerculus sandwichensis princeps	Savannah Sparrow (Ipswich subspecies)	Bird	Bird	I	a	Beaches and Dunes	7.3.3	Natural Erosion and Sedimentation / /	Removal, transport and deposition of sediments that is caused by natural erosional processes. To be distinguished from the transport of sediments that is associated with tides (Threat 4.3.1), or by drainage systems in agriculture (Threat 7.2.5) and forestry (Threat 7.2.6). / /	Pursue dune stabilization in areas that support wintering individuals and where it is feasible to do so; such projects should be informed by research on the subspecies' winter ecology (for ex. to guide plant species selected for stabilization efforts or included in beach plantings) (7.3.3)		Virginia plays a significant role in the conservation of this isolated, specialized subspecies, which breeds primarily on Cape Sable Island in Nova Scotia, Canada. Support ongoing investigations of Ipswich Sparrow winter ecology to identify key habitat characterics, which will inform management and conservation efforts to maintain a supply of high-quality wintering habitat for the subspecies
75	Limnodromus griseus	Short-billed Dowitcher (transient)	Bird	Bird	IV	a	Shorelines, Beaches and Dunes, Tidal Wetlands, Tidal Creeks and Rivers	11.1.1	Changes in Vegetation Communities / /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Address impacts of sea level rise as follows: 1. Increase the elevation of mudflats used by foraging and roosting Short-billed Dowitcher (SBDO) that are in danger of being lost to sea level rise through the thin layer deposition of dredge material obtained from adjacent navigational channels. 2. Evaluate the effectiveness of this technique by conducting before and after shorebird surveys to quantify differences in shorebird use and by conducting before and after benthic invertebrate surveys and sampling to measure differences in prey types, density and availability. (11.1.1)		Other potential threats for which no achievable actions have been identified: 11.2.2 (impacts on SBDO prey); 11.3.3 (impacts on SBDO prey); 11.3.4 (impacts on SBDO prey) 9.2.1; 8.2.5 (predation by breeding PEFA)
76	Egretta thula	Snowy Egret	Bird	Bird	II	a	Shorelines, Beaches and Dunes, Tidal Creeks and Rivers, Large Tidal Rivers, Lakes, Ponds, Non-tidal Wetlands, Tidal Wetlands, Urban Lands, Transportation Networks, Artificial Impoundments	11.1.1, 6, 6.3.1	Changes in Vegetation Communities / Human Intrusions and Disturbance / Research Activities	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / Threats from activities (unrelated to the use of biological resources) that disturb, alter, or destroy habitats and their species. / Research activities that are governed by management measures that can affect species by causing disturbance, by collecting individual, or by degrading the environment. E.g., research fisheries requiring mortality, trampling by research teams.	Address loss of high marsh shrub habitat in marshes as follows: 1. Develop, secure funding for, implement and evaluate a pilot project involving thin layer deposition of dredge material obtained from local navigational channels to increase the elevation of seaside and Chesapeake Bay marshes that used to support wading bird colonies, including Snowy Egret (SNEG), but no longer do because of the disappearance of salt tolerant shrubs e.g., *Iva frutescens, Baccharis halimifolia, Morella cerifera*) due to subsidence and frequent tidal inundation. 2. A second component of this project may include the planting of desired shrubs if reestablishment doesn't occur naturally. 3. Evaluate the effectiveness of this technique and its impacts on the marsh hydrology and plant and wildlife communities over the long term. (11.1.1), 1.Gain permission to post bird closure signs around key SNEG colonies that are located on unprotected private and public marshes and islands in the Chesapeake Bay. 2. Post bird closure signs around key SNEG colonies located on VMRC-owned seaside marshes that are vulnerable to human disturbance. 3. Work with CPOs to establish a law enforcement presence at these posted sites. (6), 1. Design, implement and evaluate a more accurate breeding wading bird survey methodology that also avoids or minimizes observer disturbance. The current adult flush count method has never been tested for accuracy and is highly susceptible to observer bias. (6.3.1)	In Virginia, known to nest on artifical islands in the Hampton Roads area adjacent to a major interstate highway. Forages in shallow waters of ponds, lakes, rivers, impoundments and at the edges of fresh, brackish and saltwater marshes	Other potential threats for which no achievable actions have been identified: 11.5.2; 11.2.2 (salinity impacts on prey); 11.3.3 (temp impacts on prey)

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1	**Scientific_Name**	**Common_Name**	**Grouping**	**Type**	**Tier**	**COR**	**Habitats**	**Threat_Code**	**Threat_Description**	**Threat_Long**	**Actions**	**Working_Lands**	**Notes**
77	Egretta tricolor	Tricolored Heron	Bird	Bird	II	a	Shorelines, Beaches and Dunes, Tidal Wetlands	11.1.1, 6, 8.1.4	Changes in Vegetation Communities / Human Intrusions and Disturbance / Aquatic Plants	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / Threats from activities (unrelated to the use of biological resources) that disturb, alter, or destroy habitats and their species. /	Address loss of high marsh shrub habitat in marshes as follows: 1. Develop, secure funding for, implement and evaluate a pilot project involving thin layer deposition of dredge material obtained from local navigational channels to increase the elevation of seaside and Chesapeake Bay marshes that used to support wading bird colonies, including Tricolored Heron (TRHE), but no longer do so because of the disappearance of salt tolorant shrubs e.g., *Iva frutescens, Baccharis halimifolia, Morella cerifera*) due to subsidence and frequent tidal inundation. 2. A second component of this project may include the planting of desired shrubs if reestablishment doesn't occur naturally. 3. Evaluate the effectiveness of this technique and its impacts on the marsh hydrology and plant and wildlife communities over the long term. (11.1.1), 1.Gain permission to post bird closure signs around key TRHE colonies that are located on unprotected private and public marshes and islands in the Chesapeake Bay. 2. Post bird closure signs around key TRHE colonies located on VMRC-owned seaside marshes that are vulnerable to human disturbance. 3. Work with CPOs to establish a law enforcement presence at these posted sites. (6), 1. Improve existing wading bird breeding habitat by conducting regular control of phragmites and other invasive plant species at coastal DWR WMAs with suitable TRHE breeding habitat. NOTE: this will benefit all nesting wading birds. (8.1.4)		<u>Other potential threats for which no achievable actions have been identified</u>: 11.5.2; 11.2.2 (salinity impacts on prey); 11.3.3 (temp impacts on prey)
78	Catharus fuscescens	Veery	Bird	Bird	III	b	Forests and Woodlands	No specific identified threats, see notes for more information,	/ /	/ /	Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects.		The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors; the Amazon Basin may be of particular significance for this species.
79	Pooecetes gramineus	Vesper Sparrow	Bird	Bird	I	a	Grasslands, Transportation Networks	2.1.2, 9.3.3,	Perennial Cropping Systems / Herbicides and Pesticides /	Crops that are associated with less intensive agricultural practices that have less of an ecological impact than do annual crops. E.g., pastures, forage crops, hay, alfalfa, clover. / Includes the use of inputs for controlling crop pests. E.g., herbicides, insecticides, fungicides. /	Coordinate with and support expansion of programs such as the Virginia Grassland Bird Initiative, which conduct research and provide financial incentives to private landowners to adopt BMPs to improve grassland bird productivity (2.1.2), Research the impacts of pesticides on prey base and impact on grassland bird communities (9.3.3)	May breed in short-grass meadows, pastures, hayfields, cultivated grain fields and weedy roadsides.	The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.
80	Rallus limicola	Virginia Rail	Bird	Bird	III	b	Non-Tidal Wetlands, Tidal Wetlands,	11.1.1	Changes in Vegetation Communities / /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Address impacts of sea level rise as follows: 1. purchase and conserve properties in marsh migration zones where upland habitats have a high probablity of transforming into suitable Virginia Rail (VIRA) breeding habitat. 2. Manage coastal WMAs that encompass suitable marsh habitats for breeding VIRA. 3. Conduct regular VIRA occupancy and breeding productivity monitoring on DWR WMAs that are managed for marsh-nesting birds to evaluate the effectiveness of management strategies. NOTE: This will benefit Clapper Rail, Forster's Tern, Laughing Gull and other marsh nesting species. (11.1.1)		<u>Other potential threats for which no achievable actions have been identified</u>: 8.2.5; 11.2.2 (salinity impacts on prey); 11.5.2; 11.3.4
81	Setophaga virens waynei	Wayne's Warbler (subspecies)	Bird	Bird	I	b	Forests and Woodlands	No specific identified threats, see notes for more information,	/ /	/ /	Pursue collection of ecological (including breeding habitat associations) and reproductive data in Virginia, as well as data on migratory connectivity.		Work to gain a better understanding of the subspecies' status and distribution in Virginia as a first step toward evaluating vulnerability and need for management actions. Drivers of limiting factors are currently unknown. Pursue collection of ecological (including breeding habitat associations) and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects or as a stand-alone effort in Virginia, as a path toward investigating geographic and temporal extent of limiting factors.
82	Numenius phaeopus	Whimbrel (transient)	Bird	Bird	III	b	Shorelines, Beaches and Dunes	3.3.2, 11.1.1, 11.2.2	Wind Farms / Changes in Vegetation Communities / Changes in salinity	/ Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. /	1. Support trackinging studies to determine if Whimbrel spring and fall migratory flight paths intersect the current VA Offshore Wind (OSW) facilility, other VA OSW leases, and OSW leases in other Atlantic coast Wind Energy Areas. (3.3.2), Address impacts of sea level rise as follows: 1. Increase the elevation of mudflats used by foraging and roosting Whimbrel (WHIM) that are in danger of being lost to sea level rise through the thin layer deposition of dredge material obtained from adjacent navigational channels. 2. Evaluate the effectiveness of this technique by conducting before and after shorebird surveys to quantify differences in shorebird use and by conducting before and after benthic invertebrate surveys and sampling to measure differences in prey types, density and availability. (11.1.1), Address potential impacts to WHIM prey as follows:1. Conduct diet studies using a variety of techniques (e.g., stable isotope analyses, DNA analyses on fecal samples, visual observations of foraging behavior) to determine the impacts of climate change on WHIM prey availability and selection. (11.2.2)		Address potential impacts to WHIM prey as follows:1. Conduct diet studies using a variety of techniques (e.g., stable isotope analyses, DNA analyses on fecal samples, visual observations of foraging behavior) to determine the impacts of climate change on WHIM prey availability and selection. (11.3.3, 11.3.4), Other potential threats for which no achievable actions have been identified: 11.2.2 (impacts on WHIM prey); 11.3.3 (impacts on WHIM prey); 11.3.4 (impacts on WHIM prey) 9.2.1
83	Tringa semipalmata	Willet (Western) (winter)	Bird	Bird	IV	a	Shorelines, Beaches and Dunes, Tidal Creeks and Rivers, Tidal Wetlands	11.1.1	Changes in Vegetation Communities / /	Major changes in an ecosystem resulting in changes to vegetation communities distinguished from natural vegetation succession, which may threaten open-country species (Threat 7.3.2). E.g., migration of deciduous trees towards the boreal forest, rising sea levels, desertification, thawing permafrost (in tundra), coral bleaching. / /	Address impacts of sea level rise as follows: 1. Increase the elevation of mudflats used by foraging and roosting Willet (WILL) that are in danger of being lost to sea level rise through the thin layer deposition of dredge material obtained from adjacent navigational channels. 2. Evaluate the effectiveness of action #1 by conducting before and after shorebird surveys to quantify differences in shorebird use and by conducting before and after benthic invertebrate surveys and sampling to measure differences in prey types, density and availability. 3. Enhance and increase WILL roosting habitat in the seaside marshes by increasing the elevation and footprint of eroding shell rakes. (11.1.1)		<u>Other potential threats for which no achievable actions have been identified</u>: 7.3.3; 8.1.1 (introduced PEFA impacts); 8.4.2; 9.2.1; 11.4.2 (drought impacts on prey availability); 11.2.2 (salinity shift impacts on prey); 11.3.3 temp change impacts on prey); 11.5.2

	A	B	C	D	E	F	G	H	L	P	T	U	V
1	**Scientific_Name**	**Common_Name**	**Grouping**	**Type**	**Tier**	**COR**	**Habitats**	**Threat_Code**	**Threat_Description**	**Threat_Long**	**Actions**	**Working_Lands**	**Notes**
84	Charadrius wilsonia	Wilson's Plover	Bird	Bird	I	a	Shorelines, Beaches and Dunes	6, 8.1.4, 8.2.5	Human Intrusions and Disturbance / Aquatic Plants / Increased Predation by Mesopredators	Threats from activities (unrelated to the use of biological resources) that disturb, alter, or destroy habitats and their species. / / e.g., racoons, striped skunks, foxes, coyotes.	1. Continue to post bird closure signs around key shorebird and seabird nesting areas on the barrier islands (note: this action will benefit *all* nesting shorebirds and seabirds on the barrier islands). 2. Continue to engage in various forms of outreach and education (e.g., printed pamphlets, *Explore our Seaside* website, presentations, social media) which conveys the importance of the barrier islands to birds and other wildlife and clearly outlines island use policies. 3. Increase the presence of law enforcement and volunteer stewards on the barrier islands, especially during peak island use periods (e.g., weekends and summer holidays) to keep up with the annual increases in the number of people visiting the islands. (6), 1. Conduct phragmites control on key Wilson's Plover (WIPL) nesting islands in areas where back barrier stands of phragmites impede brood access to backside foraging areas. 2. Monitor the effectiveness of limited phragmites removal by placing trail cameras along the edges of adjoining mudflats combined with intensive monitoring of WIPL breeding productivity. 3. If phragmites removal improves brood access to backside foraging areas, continue phragmites control, as needed. (8.1.4), 1. Continue to support mammalian (raccoons, foxes, coyotes) management efforts on barrier islands that support the majority of VA's WIPL breeding population. 2. Support and conduct various forms of avian predator management (e.g., audio deterrents, harrassment, effigies, lethal removal) on islands where plover productivity monitoring efforts indicate the need for the limited removal of gulls, corvids, great horned owls and/or other predatory species. 3. Continue to monitor ghost crab activity around WIPL nests and engage in limited removal of crabs if the data support such an action. (8.2.5)		NOTE: WIPL nesting activity in VA is currently confined to the barrier islands located seaward of the lower Delmarva Peninsula. All but one of the islands (i.e., Wallops Island) are under conservation ownership and protected from development in perpetuity. Other potential threats for which no achievable actions have been identified:: 3.3.2; 7.3.3; 8.1.1 (introduced breeding PEFA on the outer coast, coyotes on the barrier islands); 11.4.2 (drought impacts on prey availability); 11.3.3; 11.5.1; 11.5.2
85	Hylocichla mustelina	Wood Thrush	Bird	Bird	IV	a	Forests and Woodlands	5.3	Logging and Wood Harvesting / /	Harvesting trees/other forest species in natural environments for timber or fiber outside of plantations (Threat 2.2). Includes cutting and the use of machinery, as well as wood storage and debris management, excluding their transport (Threat 4.1) and associated erosion (Threat 9.3) / /	Given that breeding grounds habitat loss may be the primary factor limiting Wood Thrush populations in Virginia (Rushing et al. 2016), pursue habitat management for the species; this can be accomplished via the Appalachian Mountains Joint Venture focal areas initiative west of the Blue Ridge Mountains, and via other mechanisms elsewhere in the state for this widely distributed species. Pursue development of regional forestry Best Management Practices (BMPs) for the species in order to maximize efficacy of current Wood Thrush forestry guidelines. (5.3)		participate in 2024-2026 range-wide Wood Thush Motus tagging project in order to refine information on migratory connectivity, as well as collect data on timing and departure dates and survival across the full annual cycle. This will position Virginia to better support Southern Wings projects targeting the species in Central America.
86	Setophaga petechia	Yellow Warbler	Bird	Bird	III	b	Forests and Woodlands, Shrublands	7.3.2	Vegetation Succession / /	Natural vegetation succession causing habitat loss for species of early successional habitats. / /	This is a suspected, but not known, threat. Pursue multiple strategies to ensure adequate supply of early-successional conditions across habitat types to meet reproductive needs of the species. (7.3.2)	Breeds in moist brushy areas near streams, ponds and lakes. Common in orchards, blueberry bogs, fence rows and cutover powerline R-O-Ws.	The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.
87	Icteria virens	Yellow-breasted Chat	Bird	Bird	IV	a	Forests and Woodlands, Shrublands, Savannas	7.3.2	Vegetation Succession / /	Natural vegetation succession causing habitat loss for species of early successional habitats. / /	This is a suspected, but not known, threat. Pursue multiple strategies to ensure adequate supply of early-successional conditions across habitat types (regenerating clearcuts, shrubby pastures, right-of-ways, abandoned fields, restored strip mines, young pine plantations, vegetated fencerows, etc) to meet reproductive needs of the species. (7.3.2)	Breed in areas of dense shrubbery, including abandoned farm fields, clearcuts, powerline corridors, fencerows, forest edges and openings, swamps, and edges of streams and ponds.	The reasons for declines are not completely understood. Pursue collection of ecological and reproductive data in Virginia, as well as data on migratory connectivity via coordinated multi-state projects, as a path toward investigating geographic and temporal extent of limiting factors.