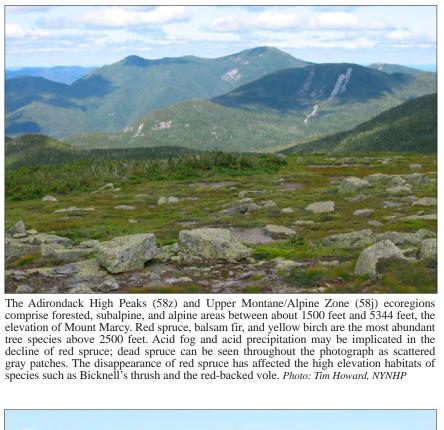


lakes' risk of harm from increased acidity depends on the underlying rock's capacity to neutralize acid precipitation. Photo: Jonathan Esper, Wildernesscapes





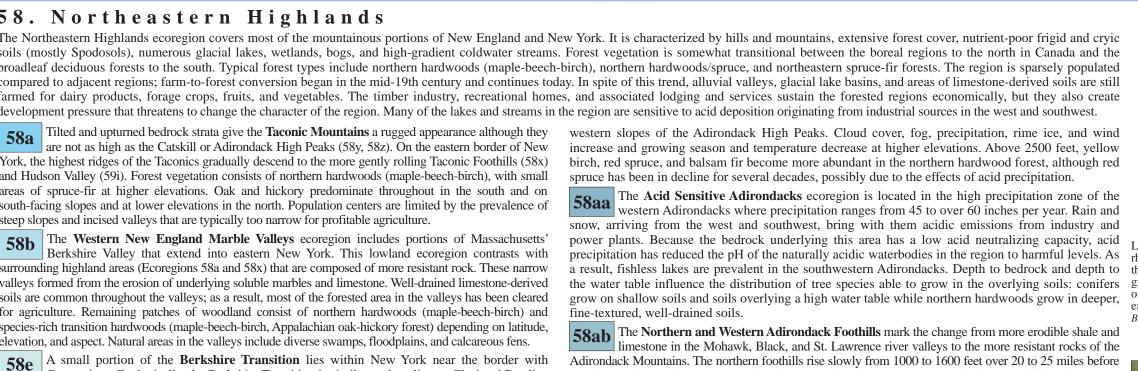
mountainous areas adjacent to the Hudson Valley (59i).

ompared to adjacent regions; farm-to-forest conversion began in the mid-19th century and continues today. In spite of this trend, alluvial valleys, glacial lake basins, and areas of limestone-derived soils are still urmed for dairy products, forage crops, fruits, and vegetables. The timber industry, recreational homes, and associated lodging and services sustain the forested regions economically, but they also create velopment pressure that threatens to change the character of the region. Many of the lakes and streams in the region are sensitive to acid deposition originating from industrial sources in the west and southwest. Tilted and upturned bedrock strata give the Taconic Mountains a rugged appearance although they western slopes of the Adirondack High Peaks. Cloud cover, fog, precipitation, rime ice, and wind are not as high as the Catskill or Adirondack High Peaks (58y, 58z). On the eastern border of New increase and growing season and temperature decrease at higher elevations. Above 2500 feet, yellow ork, the highest ridges of the Taconics gradually descend to the more gently rolling Taconic Foothills (58x) birch, red spruce, and balsam fir become more abundant in the northern hardwood forest, although red nd Hudson Valley (59i). Forest vegetation consists of northern hardwoods (maple-beech-birch), with small spruce has been in decline for several decades, possibly due to the effects of acid precipitation. reas of spruce-fir at higher elevations. Oak and hickory predominate throughout in the south and on south-facing slopes and at lower elevations in the north. Population centers are limited by the prevalence of western Adirondacks where precipitation ranges from 45 to over 60 inches per year. Rain and western Adirondacks where precipitation ranges from 45 to over 60 inches per year. Rain and eep slopes and incised valleys that are typically too narrow for profitable agriculture. **58h** The Western New England Marble Valleys ecoregion includes portions of Massachusetts' power plants. Because the bedrock underlying this area has a low acid neutralizing capacity, acid Lapland rosebay is a low-growing arctic Berkshire Valley that extend into eastern New York. This lowland ecoregion contrasts with precipitation has reduced the pH of the naturally acidic waterbodies in the region to harmful levels. As rrounding highland areas (Ecoregions 58a and 58x) that are composed of more resistant rock. These narrow a result, fishless lakes are prevalent in the southwestern Adirondacks. Depth to bedrock and depth to the highest peaks of the Adirondacks (58j). It Illeys formed from the erosion of underlying soluble marbles and limestone. Well-drained limestone-derived the water table influence the distribution of tree species able to grow in the overlying soils: conifers grows in pockets of soil in boulder fields with soils are common throughout the valleys; as a result, most of the forested area in the valleys has been cleared for arrival ture. Pomolining patches of woodland consist of northern hardwoods (manle beech birgh) and fine textured well desired only of the forested area in the valleys has been cleared for arrival ture. Pomolining patches of woodland consist of northern hardwoods (manle beech birgh) and for agriculture. Remaining patches of woodland consist of northern hardwoods (maple-beech-birch) and fine-textured, well-drained soils. 58j) in the northeast portion (pictured in the distance), low mountains and myriad lakes dominate the majority of the Adirondack Mountains ecoregions. A group of large lakes species-rich transition hardwoods (maple-beech-birch, Appalachian oak-hickory forest) depending on latitude, **58ab** The **Northern and Western Adirondack Foothills** mark the change from more erodible shale and lies along the divide between the Atlantic Ocean and St. Lawrence River drainages. The elevation, and aspect. Natural areas in the valleys include diverse swamps, floodplains, and calcareous fens.

Connecticut. Geologically, the Berkshire Transition is similar to the adjacent Glaciated Reading meeting the higher hills and mountains of the Central Adirondacks (58ad). Thick deposits of glacial till in this Prong/Hudson Highlands ecoregion (58i). Topographically, it is a continuation of Ecoregion 58i, separated area have deranged the stream drainage, and a network of intersecting glacial outwash channels winds among from it only by an incised limestone valley (Ecoregion 58b). Overall, there are a greater number of scattered low hills. The water table is high, and many wetlands fill depressions in the outwash channels. In limestone valleys in the Berkshire Transition ecoregion than in Ecoregion 58i, resulting in a more diverse the west and southwest, the band of foothills is narrow, and elevations decline more quickly into the Black land use pattern. Forest types resemble those in Ecoregion 58i; northern hardwoods (maple-beech-birch), and Mohawk river valleys. Spruce was a dominant tree species in this region, but it was favored by early hemlock, and white pine are mixed with a species-rich Appalachian oak-hickory forest in warmer loggers, and most of the region is covered with second growth hardwoods forest today. microclimates. Lake density is somewhat lower than in Ecoregion 58i and surface waters are at less risk of acidification due to a higher incidence of limestone bedrock and limey glacial till. The Glaciated Reading Prong/Hudson Highlands ecoregion forms a low portion of the foothills contains a mix of rock types with varied acid neutralizing capacities. The northern part of the Appalachian Mountains connecting the mid-Appalachians with the Berkshires and Green ecoregion lies in the rain shadow of the Adirondack High Peaks (58z) and rainfall amounts are lower Bicknell's thrush is a denizen of the high buntains in New England. The Hudson Highlands are at the northern end of the Reading Prong, an than in much of the rest of the Adirondacks. In addition, the Saranac and Ausable river valleys cut elevation boreal forest patches scattered tension of the Precambrian gneiss and schist that underlies New England. Resistant bedrock is often deeply into the Adirondack dome in the northern portion, allowing the incursion of milder climate across Ecoregion 58. The Catskill High conditions from the Champlain Lowlands to the northeastern slopes of the Adirondacks. White pine is Ecoregion 58 because of the presence of this the river. Soils in Ecoregion 58i are shallow, rocky, and highly acidic. As a result, the region is mostly a prominent species in this region. Some southern forest species, spreading through the Hudson Valley species and other characteristic biota of the prested with transition hardwoods, that is, Appalachian oak-hickory on drier sites and northern hardwoods (59i) lowlands, reach their northern limits in the eastern foothills of the Adirondacks. and hemlock on north slopes and moist sites. Naturally acidic runoff plus acid deposition from upwind industrial sources put Highlands lakes at risk for future harm to aquatic life from acidification. The forested Sensitive Adirondacks (58aa). The bedrock underlying the Central Adirondacks is composed Sensitive Adirondacks (58aa). The bedrock underlying the Central Adirondacks is composed Sensitive Adirondacks (58aa). hlands provide a natural buffer zone and an outer boundary for the New York City megalopolis. The Upper Montane/Alpine Zone combines high-elevation spruce-fir forests with subalpine acid neutralizing capacity. As a result, unlike in Ecoregion 58aa, most of the lakes and streams in the and alpine communities above 2800 feet found on mountaintops across Ecoregion 58. It is a central Adirondacks are not at high risk for acidification. The Central Adirondacks ecoregion includes egion of shallow acidic soils and rock outcrops. High-elevation forests to about 3500 feet contain red the headwaters of the Hudson River where white pine and spruce were once abundant. Because they ruce, balsam fir, paper and yellow birches. Balsam fir and mountain paper birch populate subalpine were favored for logging, these two species have been largely replaced by successional hardwoods. A The Adirondack High Peaks (58z) and Upper Montane/Alpine Zone (58j) ecoregions areas above 3500 feet to timberline near 4500 feet. Cloud cover, fog, precipitation, rime ice, and wind concentration of large lakes, including the Saranac Lakes, occurs in the northern part; they are perched comprise forested, subalpine, and alpine areas between about 1500 feet and 5344 feet, the increase—and growing season and temperature decrease—at higher elevations; as a result, trees may at the edge of the elevated dome of the Adirondack Mountains above the network of outwash channels elevation of Mount Marcy. Red spruce, balsam fir, and yellow birch are the most abundant be stunted or misshapen into krummholz near and above timberline. Alpine zones are found on that define the northern foothills of the Adirondacks in Ecoregion 58ab. tree species above 2500 feet. Acid fog and acid precipitation may be implicated in the action of the high elevation habitats of gray patches. The disappearance of red spruce has affected the high elevation habitats of barrens. Major wildlife species inhabiting these high elevation areas include Bicknell's thrush, black-backed woodpecker, blackpoll warbler, red-backed vole, and snowshoe hare.

black-backed woodpecker, blackpoll warbler, red-backed vole, and snowshoe hare. **58x** Located between the Hudson Valley (59i) and the Taconic Mountains (58a), the **Taconic the trace of the Surface Foothills** form a transition zone between the valley and surrounding highlands. The Taconic plateau is flat and covered by dense glacial till. The flat topography and high annual precipitation Adirondack High Peaks ecoregion (58z) due to Foothills are underlain by the same ancient metamorphosed rock as the Taconic Mountains; however, amounts contribute to a high density of swamps and bogs. Like the Rensselaer Plateau (58ag), the Tug difficult access; reaching the summit of Mt. although the higher hilltops show exposed bedrock, much of the region has been buried by glacial till. The Hill Plateau is valued for its large contiguous block of forested land that is important for wildlife and Marcy requires a 15 mile ski or snowshoe trip. foothills have a more rounded and rolling profile than the upended Taconic Mountains (58a). Appalachian water quality. In the mid-20th century, after widespread logging and farm abandonment, the plateau was oak-hickory forest, which dominates the southern portion, declines and is replaced by northern hardwoods reforested by successional hardwoods and large areas have been replanted to pine plantations. (maple-beech-birch) in the north. Historically, the foothills were mostly cleared for agriculture, until farm abandonment began in the late 19th century. Today, the land use mosaic in the Taconic Foothills consists **58af** The **Tug Hill Transition** ecoregion contains sloping topography and escarpments surrounding the flat core of the Tug Hill Plateau. The eastern boundary of the ecoregion is fairly distinct at of woodland, pasture, minor areas of cropland, and rural residential development. The **Catskill High Peaks** ecoregion contains the same horizontal strata of sandstone, shale, and from the Ontario Lowlands (83c). The Tug Hill Transition shares the same wet climate as the Tug Hill siltstone as those underlying the surrounding Northern Allegheny Plateau (Ecoregions 60c and Plateau, but it differs in its geology and soil. The sandstone forming the core area of the plateau is 50a); however, the Catskill High Peaks are capped by sandstones and conglomerates that resist erosion, surrounded on three sides by a band of siltstone and shale. Soil derived from siltstone and shale is and their summits rise up to 2000 feet above the plateau. The Catskill High Peaks are included in the relatively more suited to cultivation than that from sandstone. As a result, the land use pattern around Northeastern Highlands ecoregion (58) because they contain some boreal elements at higher elevations the perimeter of the heavily forested core of the plateau changes to a farm and woodlot mosaic. In the bove 3000 feet, such as red spruce, balsam fir, quaking aspen, yellow birch, red-backed vole, and contact area between the sandstone and shale, deep gorges have formed from stream activity eroding the Sicknell's thrush. Transition hardwoods species typically found in the warmer climate of the Hudson weaker shale, and waterfalls mark the change in rock type. Valley (59i) penetrate the southern and eastern Catskills to high elevations up major alluvial valleys and on south-facing slopes. Streams in the Catskills High Peaks are at risk for acidification, although there is underlain by a mass of greywacke, an ancient sandstone largely composed of quartzite, which is

s been some recovery, indicated by improved stream chemistry, in the past decade. The Adirondack High Peaks ecoregion occurs in the northeastern portion of the Adirondack Foothills (58x). On the rolling, hummocky terrain of the plateau, drier uplands alternate with many ponds Mountains where there is a high concentration of mountain peaks over 3000 feet. Ecoregion 58z and wetlands. The abundant wetlands range from red maple-hardwood and spruce-fir swamps to kettle rise to 2000 feet above the surrounding Northern Allegheny Plateau (60). Although the Catskill High Peaks are high enough to support some species of boreal flora and fauna, the 2800 feet the ubundant wetlands, northern hardwoods and sprace in swalings to the high mountains to 2800 feet; the subalinear each above the surrounding Northern Allegheny Plateau (60). Although the oversteen the distribution of the high mountains to 2800 feet; the subalinear each above the surrounding Northern Allegheny Plateau (60). Although the oversteen the distribution of the high mountains to 2800 feet; the subalinear each above the surrounding Northern Allegheny Plateau (60). Although the oversteen the distribution of the high mountains to 2800 feet; the subalinear each above the surrounding Northern hardwoods and sprace of the northern hardwoods and sprace of the northern hardwoods and sprace of the northern hardwoods, and the distribution of the high mountains to 2800 feet; the subalinear each above the surrounding Northern hardwoods and sprace of the northern hardwoods and sprace o Catskill High Peaks are high enough to support some species of boreal flora and fauna, the region is a transition area for northern and central hardwoods, or different forests. Central hardwoods, or di Appalachian oak forests, grow even at high elevations on south-facing slopes and in igneous, erosion-resistant anorthosite dating from the Precambrian era. The orographic lifting of clouds and other wildlife such as deep, moderately well-drained, and formed 1980's. *Photo: Matthew Schlesinger, NYNHP* beginning at the Tug Hill Plateau (58ae) in the west creates a swath of high precipitation over the fisher, bobcat, bear, and even moose. Several mines in the region quarry greywacke for road construction.

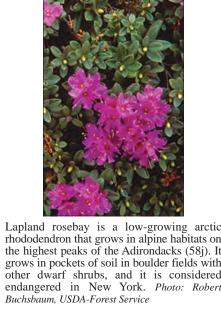


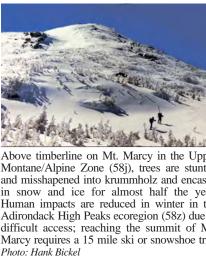
boreal forest. Photo: Brennan Mulrooney mostly of anorthosite and interbedded metasedimentary rock, both of which have a moderate to high

subsequent uplift of clouds to higher elevations create belts of high precipitation downwind of the Great Montane/Alpine Zone (58j), trees are stunted

the flat core of the Tug Hill Plateau. The eastern boundary of the ecoregion is fairly distinct at an escarpment over the Black River Valley. In the west, the plateau increases in elevation very gradually

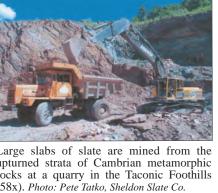
resistant to erosion. An escarpment separates the plateau from the Taconic Mountains (58a) and Taconic













the history of the Adirondacks. Sinc colonial times it has been a favored timbe species, and today it is reforesting forme arms and cutover areas in the Adirondac foothills (58ab, 58ac).



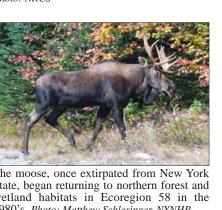
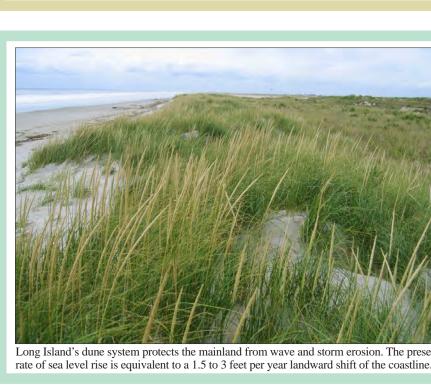






Photo: Jim Wark, Airphoto



59. Northeastern Coastal Zone The Northeastern Coastal Zone ecoregion covers most of southern New England and the coastal areas of New Hampshire and southern Maine. Its landforms include rolling or irregular plains. Soils are Inceptisols formed from glacial till that support Appalachian oak forest and northeastern oak-pine forests. Similar to the Northeastern Highlands (58), the Northeastern Coastal Zone contains relatively

dominate much of the landscape, with minor areas of pasture and cropland. **59c** A small portion of the **Southern New England Coastal Plains and Hills** ecoregion enters the Island supports a northern variant of Appalachian forest, similar to that on the coastal plain of southeastern corner of New York north of Long Island Sound, continuing southward to include Connecticut. Some flora of the southeastern Piedmont and Coastal Plain reach their northern limit in the Manhattan Prong between the Bronx River and the Hudson River. The Manhattan Prong is a narrow this ecoregion, including holly, post oak, sweetgum, and persimmon. The dominant tree species projection of the same Precambrian gneiss and schist that underlies the Hudson Highlands (58i). The include tulip tree, black and red oak, beech, black birch, and red maple, with an understory dominated Coastal beech forest grows on the moraines The Hudson River is tidal north to Troy, N and forms of the ecoregion include irregular plains with relief of 100 to 300 feet. Numerous, till-covered by eastern dogwood. Sweet gum and pin oak occur in moist areas near kettle ponds. Little of the of northern Long Island (59g) where the soil Freshwater tidal marshes are critical for fish bedrock hills rise above the valleys and outwash plains. Historically, forests were dominated by a mix of original forest remains on western Long Island as much of the ecoregion is highly urbanized. Small is derived from glacial till rather than sand. and waterfowl. Photo: Steve Young, NYNHP oaks, American chestnut, hickories, and some hemlock and white pine. As with many other areas of New acreages exist in parks and preserves, but species diversity is much reduced. England, these forests were cleared, either for agriculture and grazing or for the production of charcoal. The Southern New England Coastal Plains and Hills ecoregion is distinguished from the more the southern New England Coastal Plains and Hills ecoregion is distinguished from the more completely forested Glaciated Reading Prong/Hudson Highlands (58i) in the north by its low rolling north. The underlying geology of the Hudson Valley includes mostly Ordovician shales and siltstones. The topography and mix of woodland, rural residential, urban, and suburban centers. **59g** The Long Island Sound Coastal Lowland ecoregion follows the shore of southern Connecticut, Rhode Island, and New York and includes the western third of Long Island. Most of this area lies north of the terminal moraines and outwash that compose the coastal strip and barrier Lake Albany cover the valley floor today. The coarser-grained sands deposited in the area surrounding Albany corridors, riverside development, and wildlife preserves. Constitution Marsh, pictured here, islands. As a result, the dominant surficial material is till as opposed to outwash sand and gravel, which islands. As a result, the dominant surficial material is till as opposed to outwash sand and gravel, which islands. As a result, the dominant surficial material is till as opposed to outwash sand and gravel, which islands. As a result, the dominant surficial material is till as opposed to outwash sand and gravel, which islands. As a result, the dominant surficial material is till as opposed to outwash sand and gravel, which islands. As a result, the dominant surficial material is till as opposed to outwash sand and gravel, which islands. provides critical habitat for wetland species, such as the threatened least bittern, and serves dominates of New elevations and the moderate climate of the Hudson Valley allow Appalachian oak-hickory forest to penetrate

population density than Ecoregion 58. Although European settlers attempted to farm much of the Northeastern Coastal Zone until the mid-19th century, woodland and urban and suburban development now shales were more easily eroded than the surrounding gneiss, schist, and sandstone-capped shales of the and southwest bring warm, humid air to the region. With its mild maritime climate, western Long warms they are expected to expand their range into areas now dominated by northern hardwoods.

60. Northern Allegheny Plateau Ecoregion 60 is a plateau made up of horizontally bedded, erodible shales and siltstones, and moderately resistant sandstones of Devonian age. It is often lower and less forested than the adjacent unglaciated North Central Appalachians (62). Its rolling hills, open valleys, and low mountains are covered by till from Wisconsinan Age glaciation and the landscape is a mosaic of cropland, pastureland, and woodland. Soils are mostly mesic Inceptisols that are limited by stoniness and seasonal wetness. Historically, the natural vegetation was primarily Appalachian oak forest dominated by white oak and red oak, with some

northern hardwood forest at higher elevations. The Northern Allegheny Plateau has more level topography and more fertile, arable land than the more rugged and forested North Central Appalachians (62). **60a** The **Glaciated Low Allegheny Plateau** is a broad, fairly homogeneous area that covers much even at higher elevations. Streams retain a pool and riffle profile similar to that at higher elevations, but of the northern Allegheny Plateau. The landscape is a mosaic of farmland and woodlots on the streams are broader and open to the sun. Water temperatures are higher, and native fish species are low, rolling hills. The terrain has been glacially smoothed, with flattened hilltops and wide stream more numerous than in headwater areas. Undammed streams support anadromous American shad runs. valleys. Soils of the Glaciated Low Allegheny Plateau are shallow and stony. They commonly have a fragipan (a hard subsurface layer) and poor drainage; however, locations on convex or moderately through the soft shales composing the northern edge of the Northern Allegheny Plateau (60) where it meets the Ontario Lowlands sloping ground have drainage sufficient for agriculture. The native vegetation alternates between (83c). During the Pleistocene Epoch, the glaciers ground into soft shale bedrock and transformed Appalachian oak forest on drier slopes and northern hardwoods-conifer forest on moist slopes, ravines, v-shaped river and stream valleys into the u-shaped troughs that hold the Finger Lakes today. The drinking water needs of New York City and riparian areas. Hemlock has a more restricted distribution in this ecoregion than it does on the Valley Heads Moraine blocked the flow of streams to the south and dammed the Finger Lakes. Many Unglaciated High Allegheny Plateau (62d), where cooler temperatures and higher precipitation levels waterfalls enter the lake basins from hanging valleys created by glaciers on former tributary streams. are conducive to a greater occurrence of hemlock. Typically, the rounded tops of the dissected plateau Gorges winding back from the perimeter of the Finger Lakes valleys have formed in post-glacial times have been cleared for agriculture and the steeper slopes remain forested. The topography and soil through waterfall-created erosion. Inceptisols of the Northern Allegheny Plateau (60) intermingle with make Ecoregion 60a more suitable for dairy and livestock farming than for row crops. 60b The Delaware-Neversink Highlands ecoregion is a dissected glaciated plateau, capped by **build** rolling, flat-topped hills of moderate relief and slope. It is somewhat higher in elevation than the Glaciated Low Allegheny Plateau (60a) because the region has a greater amount of resistant **60e** The **Glaciated Allegheny Hills** ecoregion is a continuation of the Unglaciated High Allegheny Plateau (62d) to the south, but it has a more rounded topography and a higher density of lakes sandstone and conglomerate capping softer shales and siltstones. This ecoregion also differs from the because it was glaciated during the Pleistocene Epoch. The higher elevations are created by resistant Catskills Transition (60c) to the north and east that has more exposed bedrock, some frigid soils, Devonian-age strata of sandstone and shale. The Glaciated Allegheny Hills ecoregion is deeply dissected; increased precipitation, and lower stream and lake alkalinity. The Inceptisols of Ecoregion 60b tend to soils are stony, acidic, low in fertility, and often found on steep slopes. The west side of the region The prothonotory warbler is expanding its The broad Lower Beaver Kill is one of the

result, the Delaware-Neversink Highlands have a greater proportion of forested area to agricultural more suited to tree growth than agriculture. Hardwood forests, particularly northern hardwoods, area. The forest vegetation is mostly northern hardwood forest of maple, beech, and birch. **Construction** and conglomerate create on alcost distributed whether the state of the Catskill High Peaks (58y) as well as the surrounding Northern Allegheny Plateau (60a, 60b). The relatively resistant strata le, sandstone, and conglomerate create on alcost distributed whether the strategies of the Catskill High Peaks (58y) as well as the surrounding Northern Allegheny Plateau (60a, 60b). The relatively resistant strata **60c** The **Catskills Transition** ecoregion shares some characteristics of the Catskill High Peaks (58y) of shale, sandstone, and conglomerate create an elevated platform and a perimeter of foothills for the covers the lower slopes of the northwestern Allegheny Plateau. Although the landscape resembles that on Natural gas production has more than Catskills High Peaks (58y). The diverse topography of the Catskills Transition is expressed as rounded, the plateau itself (a mosaic of farm and woodlot), the hills are broader and lower than in Ecoregion 60a rolling hills in the west, narrow ridgelines of higher peaks in the north, and escarpments in the east the Northern Allegheny Plateau (60), gas marking the descent to the Hudson Valley (59i). Although there is some capability for farming in the have in the Finger Lakes Uplands and Gorges (60d), but glacial scouring did not widen or deepen the drilling pads fragment forested habitats with region, the trend is toward farm abandonment, rural homebuilding, and reforestation. The vegetation at lower and mid-elevations is a mosaic of central hardwoods, northern hardwoods, and low-elevation spruce and homeock in horse and riparian zones. Central hardwoods (oak-hickory), twicelly found in the warmer and homeock in horse and riparian zones. Central hardwoods (oak-hickory), twicelly found in the warmer and homeock in horse and riparian zones. Central hardwoods (oak-hickory), twicelly found in the warmer and homeock in horse and riparian zones. Central hardwoods (oak-hickory), twicelly found in the warmer and homeock in horse and riparian zones. Central hardwoods (oak-hickory) twicelly found in the warmer and brings toxic water and fine rock powder and hemlock in bogs and riparian zones. Central hardwoods (oak-hickory), typically found in the warmer region. Cattaraugus Creek flows along the southern boundary of the Cattaraugus Hills. In late fall and the surface. Photo: Joe Yarosz, NYSDEC, climate of the Hudson Valley (59i), are prominent in the east and southeast portions of the region, winter, the creek supports spawning runs of steelhead that migrate inland from Lake Erie.

61. Erie Drift Plain The rolling terrain of the Erie Drift Plain covers the southwest corner of New York where the Northern

Allegheny Plateau (60) descends toward the Great Lakes. Lake Erie's influence substantially lengthens the growing season and increases winter cloudiness and snowfall in the northern part of the region. Deposits from successive Pleistocene ice sheets and glacial lakes cover the horizontally bedded sedimentary rock and form beach ridges, hummocky stagnation moraines, kettles, and wetlands. Poorly drained soils are prevalent, making the region unsuitable for intensive row crop agriculture. The adjacent unglaciated portions of Ecoregion 62 to the east have steeper slopes, colluvial soils, and more forested land. 61c The Low Lime Drift Plain is an irregular plain, containing abundant glacial landforms such as moraines, kames, kettle ponds, and poorly-drained depressions. Because poorly-drained soils are prevalent, the region is better suited to dairy farming than intensive row crop cultivation. The Low Lime Drift Plain extends inland beyond the reach of moderating lake-effect temperatures found in the Erie/Ontario Lake Plain (83a), although it does receive lake-effect precipitation. Historically, the natural vegetation of the till plains was composed primarily of beech-maple forest, with some hemlock on the better drained sites Chautauqua Lake is a large lake formed in the same manner as the group of Finger Lakes (60d) to the east, listorically, beech and maple composed the typical forest cover of the Low Lime Drift Plain with a glacial moraine blocking its former outlet to Lake Erie. Several streams in the region support a highly

64. Northern Piedmont In southeastern New York and northeastern New Jersey, the Northern Piedmont is underlain by sedimentary rocks that are more susceptible to erosion than the metamorphic crystalline rocks that form the core

Coastal Pine Barrens (84). Forest vegetation is Appalachian oak-hickory forest on well-drained upland sites, with sugar maple and mixed hardwood forests on more fertile soils. Although the overall regional land cover is a mix of small farms interspersed with small woodlots and residential, commercial, and industrial development, the portion of Ecoregion 64 that is in New York has become highly urbanized. The Trap Rock and Conglomerate Uplands protrude above the Northern Piedmont's urban development, but early survey records indicate that forests were dominated by white, red, and black generally flat landscape. The volcanic intrusions known as trap rock create dikes and palisades oaks, with American chestnut and hickory also common. Agriculture was once prominent, but today farms where land use and land cover contrast sharply with that in the surrounding Glaciated Triassic Lowlands make up just one percent of the New York portion of Ecoregion 64e. The few remaining farms in Rockland (64e). The stony, steep ridges, hills, and palisades are composed of highly resistant diabase or basalt. The County produce specialty crops such as fruits, vegetables, and nursery stock. 40 miles along the west bank of the Hudson River just north of the New York City metropolitan area. Mixed oak forests occur on diabase and basalt ridge slopes. Red oak, white oak, and black oak are most that contains a mix of salt, brackish, and freshwater marshland, freshwater ponds, brackish lagoons, Palisades in Ecoregion 64b. Photo: June Sobrito common, with sugar maple, chestnut oak, black birch, and tulip tree. 64e The Glaciated Triassic Lowlands ecoregion occurs in New York on Staten Island and in Rockland floodplain forests of pin oak, red maple, and swamp white oak. Today, cattail, phragmites, and County between the Glaciated Reading Prong/Hudson Highlands (58i) and the Hudson River saltmarsh cordgrass dominate the remaining marshy areas in the heavily disturbed Meadowlands Palisades in Ecoregion 64b; it is a portion of a much larger ecoregion that extends to the southwest across the Much of the original marsh has been ditched and diked, burned, filled for industrial and commercial The Northern Harrier, also known as marsh piedmont of New Jersey. The Glaciated Triassic Lowlands are undulating plains underlain by erodible development, or used for landfills. Development pressures continue despite the fact that the hawk, is endangered in New York State. It is Triassic sand shales and covered by glacial drift. Glacial till covering the Triassic Lowlands is where it the downlands of the triassic sand shales and covered by glacial drift. Glacial till covering the Triassic sand shales are a shale to a state and the triassic sand shales are a shale to a state and the triassic sand shales are a shale to a state and the triassic sand shales are a shale to a state and the triassic sand shales are a shale to a state and the triassic sand shales are a shale to a state and the triassic sand shales are a shale to a state and the triassic sand shales are a shale to a state and the triassic sand shales are a shale to a state and the triassic sand shales are a shale to a state and the triassic sand shales are a shale to a state and the triassic sand shales are a shale to a state and the triassic sand shales are a state and the triassic sand state are a state and the triassic sand state are a state are a state are a state are a state are as the state are a state are as the state are a state are as the state are

62. North Central Appalachians The North Central Appalachians ecoregion is a vast, elevated plateau composed of horizontally bedded sandstone, shale, siltstone, conglomerate, and coal. Its highly dissected hills and low mountains were only partly glaciated. The region reaches its highest elevations in south central New York on erosion-resistant sandstones. Soils, derived from residuum, colluvium, and till, often have a frigid temperature regime; they are low in nutrients and support extensive northern hardwood and Appalachian oak forests, with isolated highland pockets of spruce and fir. The glaciated Low Poconos/Mongaup Hills ecoregion is lower in elevation than other portions of Ecoregion 62. Over 90% of the Mongaup Hills ecoregion is forested with northern hardwoods and Appalachian oak forest. Soils in the region are not suited for agriculture because of stones, steep slopes, deeply-incised stream channels, and a seasonal high water table. Vacation and suburban development occurs throughout the region, especially near the larger lakes. 62.d The Unglaciated High Allegheny Plateau is a deeply dissected highland composed of eroded plateau remnants, steep hills, and narrow valleys. It is characterized by extensive forests, nutrient poor residual soils, steep topography, and high gradient streams and waterfalls. Valleys were deeply cut by large volumes of glacial meltwater from the Pleistocene ice margin. Presettlement forests contained a high

more cloud cover, and higher precipitation than lower elevations in adjacent Ecoregions 61c and 60e.

of the adjacent Northeastern Highlands (58). The sedimentary rocks of the Northern Piedmont have been eroded and smoothed to irregular plains and low hills. Scattered, forested rocky ridges occur on diabase and basalt intrusions. Overall, physiography and lithology contrast with the low mountains of the Northeastern Highlands (58) and the Ridge and Valley ecoregion (67), and the flat coastal plains of the Atlantic and tidal creeks. Sand, muck, and peat deposits once supported Atlantic white cedar swamps and long growing season. Native vegetation in much of the Glaciated Triassic Lowlands has been replaced by federal environmental agencies.





83. Eastern Great Lakes Lowlands The Eastern Great Lakes Lowlands ecoregion surrounds the highland ecoregions of northern New York State. Valleys and lowlands are underlain by interbedded limestone, shale, and sandstone rocks that are more erodible

maple and mixed hardwoods can be found in scattered woodlots and calcareous wetlands.

fine-textured, deep, and productive. As a result, much of the region was cleared for agriculture or urban development and less native forest remains than in surrounding ecoregions like the Northeastern Highlands (58) or the Northern Allegheny Plateau (60). Most agricultural activity is devoted to dairy operations, although orchards, vineyards, and vegetable farming are important locally, particularly near the Great Lakes. 83a The Erie/Ontario Lake Plain is a narrow ecoregion confined to the lakeshores of Lakes Erie and Ontario. In each area, the flat lake plains are bounded on the inland side by Pleistocene 83d The St. Lawrence Lowlands ecoregion covers the lowest portions of the St. Lawrence Valley, including level glacial lake and marine plains and scattered low ridges. The climate of beach ridges that mark the former shorelines of glacial lakes Warren and Whittlesey and by moraines the St. Lawrence Lowlands is temperate with moderately warm summers and cold winters. The St. or drumlins that define the boundary with the inland Low Lime Drift Plain (61c) and Ontario Lawrence River has a moderating effect on temperatures, although it is not as strong as the lake effect substrates. The fish buries itself in the sand to Lowlands (83c). The Great Lakes' effect on climate is especially pronounced within 5 to 6 miles of the from Lake Ontario on the Erie/Ontario Lake Plain (83a) and Ontario Lowlands (83c). Precipitation coast within the topographic limit of the inland beach ridges. Increased winter cloudiness and delayed amounts are generally lower than in other areas of the state, except the Champlain Lowlands (83b). A flows north into the Richelieu River, a canal coastal freezing are characteristic of the regional climate; this lake effect on temperature is strongest 8 belt of limestone and another of sandstone form the parent material for St. Lawrence soils. Most soils also connects Lake Champlain with the Hudson to 16 miles from the coastline. Soils have developed from lacustrine deposits or till that may contain are frigid in temperature regime, differing from lowland soils elsewhere in the state that are typically River basin. Photo: Jesse W. Jaycox, NYNHP both limestone and shale. Both the soils and climate allow the production of specialty crops on the mesic. Although there is little forest land left in the St. Lawrence Lowlands, remnant forest vegetation lake plain. Grapes, early maturing vegetables, and fruit trees, including peach, apple, and cherry, are varies according to soil conditions. Forests on clay soils include sugar maple, beech, and hemlock; grown both on sandy soils and on the gravelly soils of beach ridges. The natural vegetation was largely sandy soils support black and red oak, white pine, pitch pine, and red maple. Red maple, swamp white beech-maple forest, with some American chestnut on gravelly soils. Beaches and dunes support sea oak, white ash, and elm grow in wetland soils. Sand and clay soils found in the glacial lake and marine rocket, beach grass, and bluestem grasses.

83b The **Champlain Lowlands** separate the eastern Adirondack Mountains (Ecoregions 58z and <u>and dairy products</u>. 58ac) from the Green Mountains of Vermont (Ecoregions 58c and 58k); the ecoregion includes Lake Champlain, its glacial lake plain, and till-covered lowlands to about 1000 feet in elevation. During the Pleistocene Epoch, the Champlain basin contained Glacial Lake Vermont; at its slowly rising in elevation from about 500 feet to over 1400 feet near the boundary of the Northern and maximum depth, lake water lapped at beach lines over 600 feet above sea level and glacial outwash Western Adirondack Foothills (58ab). It includes the toeslopes of the Adirondack Foothills and the deposited sand, silt, and clay sediments into the lake bed that cover the valley floor today. Above the narrow Black River Valley between the Adirondacks and the Tug Hill Plateau. The underlying geology glacial lake plain, glacial till creates the rolling topography found within the Champlain Valley. The in the east is mostly sandstone; in the west, it is a mix of quartz, gneiss, and marble. Northern region's low elevation and the presence of the lake itself moderate the regional climate. Precipitation is hardwoods dominate the hills, although small farms also occur in a landscape mosaic with abandoned large rivers that flow north from the also lower (30-34 inches per year) than in surrounding regions because of the rain shadow created by fields and woodlots. Farms produce hay, grain, potatoes, and dairy products. In the Upper St. Lawrence swamps and flowages at the edge of the the Adirondack Mountains. The glacial deposits support distinctive plant communities, such as the Valley, the network of intersecting glacial outwash channels dominating the northern Adirondack Mountains. The glacial deposits support distinctive plant communities, such as the Valley, the network of intersecting glacial outwash channels dominating the northern Adirondack pine-oak-heath sandplain forest, the valley clayplain forest, and the white pine-red oak-black oak Foothills (58ab) coalesces to form flowages, a series of swampy channels that feed the major rivers to the St. Lawrence River. *Photo: John* preservation is important to the endangered forest, that are endangered due to farmland clearing and urban and recreational development pressures. flowing north to the St. Lawrence River (e.g., the Salmon, St. Regis, Raquette, and Oswegatchie rivers). Grasshopper sparrow, short-eared owl, and upland sandpiper are grassland bird species that are threatened on an democrate in the Champlein Valley because of interaction forming matrices. hreatened or endangered in the Champlain Valley because of intensive farming practices. 83c The Ontario Lowlands are defined by the extent of Glacial Lake Iroquois. The relative underlain by limestone and shale dipping somewhat to the south away from the Adirondack proximity of the Ontario Lowlands ecoregion to Lake Ontario tempers its climate, meaning that Mountains. These rocks are more erodible than the granites and gneisses forming the Adirondacks or summer heat and winter cold are reduced. Although the influence is strongest within a few miles of the the resistant shales and sandstone-capped shales of the Northern Allegheny Plateau (60). During the lake shore in the Erie/Ontario Lake Plain (83a), the lake effect penetrates inland enough to make a recession of the Pleistocene glaciers, Glacial Lake Iroquois overflowed near Lake Oneida and a torrent noticeable winter temperature difference between the Ontario Lowlands and the north shore of Lake flowed down what is now the Mohawk Valley, eroding the valley floor and leaving a delta of sand and Ontario. The lake effect contributes to clouds in November and December, frequent fog in winter, and silt in Glacial Lake Albany (part of Ecoregion 59i). Valley soils are loamy, moist Alfisols derived from high snow amounts. Historically, the forest was dominated by beech and sugar maple with smaller glacial till that support dairy farming, pasture, and associated forage crops. The Mohawk Valle amounts of white oak, basswood, elm, and white ash. Although forests once entirely covered the Ontario although broad, is irregular and hilly, and the flat Mohawk River floodplain is quite narrow in place Lowlands, only scattered woodlots remain today because of the region's high agricultural capability. The The valley has served as a corridor to western New York (and the Midwest) since the early loamy soils of the Ontario Lowlands are derived from limestone and calcareous shale (Alfisols); they are century, first for settlers, then for transport with the construction of the Erie and Barge Canals, e temperature effect occurs within 8 to 16 miles of the Lake Ontario shoreline in generally deep and finely textured. Although dairy and livestock farming are common, the soils and railroads, and highways. Canal building, channelization, and highways. Canal building, channelization, and highways.

than the more resistant rocks composing the adjacent mountainous areas. The topography and soils of the lowlands have also been shaped by glacial lakes and episodic glacial flooding. Limestone-derived soils are

plains have been cleared for agriculture since the late 18th century. Farms produce hay, grain, potatoes,

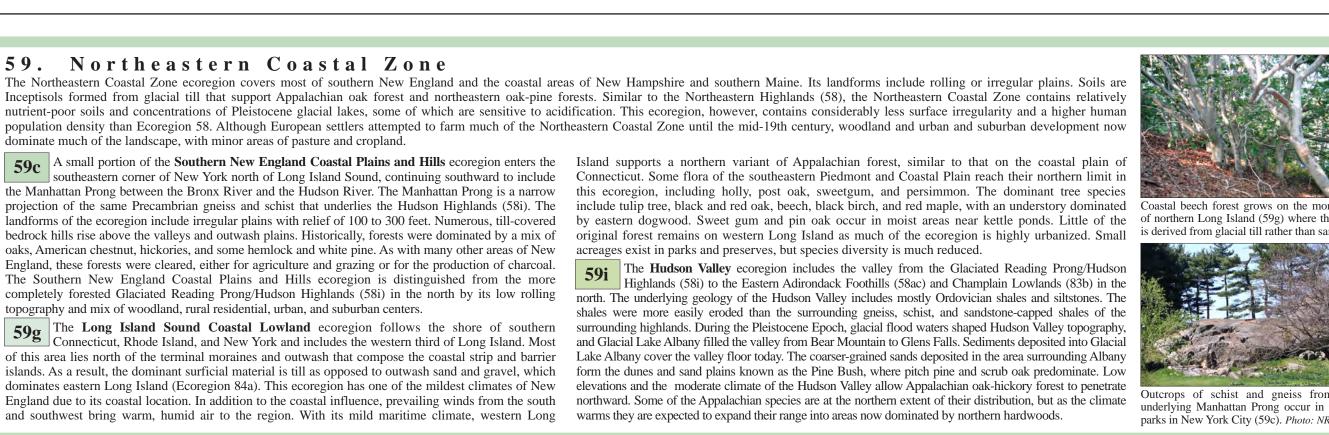
the Adirondack Mountains (Ecoregions 58aa, 58ab, and 58ac) to the north. The valley is Ecoregion 83a. Delayed spring warming and late fall cooling are ideal for orchard crops. climate of the Ontario Lowlands are also suitable for growing fruit, vegetables, and other specialty crops.

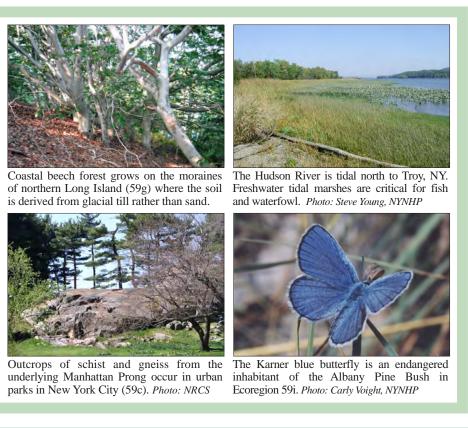


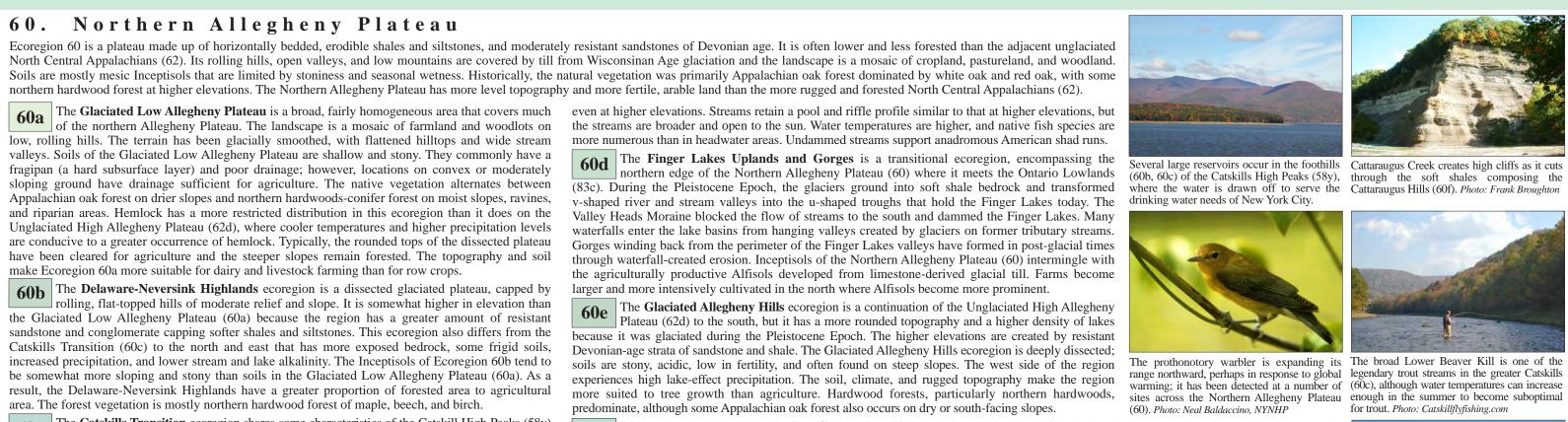
84. Atlantic Coastal Pine Barrens The Atlantic Coastal Plain Barrens is a coastal plain ecoregion, distinguished from the Middle Atlantic Coastal Plain (63) to the south by its coarser-grained soils, cooler climate, and northeastern oak-pine barrens

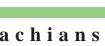
vegetation. The coastal climate is more moderate than that inland with a narrower range of seasonal temperatures and a longer growing season. Ecoregion 84 is transitional to the coastal ecoregion (59) to the north. The characteristic sandy beaches, grassy dunes, bays, marshes, and scrubby oak-pine forests exist in contrast to the rocky, forested coastline found farther north in Ecoregion 59. The xeric, quartz-sand soils are acidic and have limited nutrient availability. Salt marshes, swamps, and floodplain forests are present in low sites on hydric soils. Freshwater wetlands and marshes may be present in dune swales. 84a The Cape Cod/Long Island ecoregion includes all of Cape Cod, Block Island, the Elizabeth Beaches, dunes, barrier islands, salt marshes, bluffs, and bays compose the Barrier Islands, Martha's Vineyard, Nantucket, and eastern Long Island. Some of the unique ecological Islands/Coastal Marshes ecoregion. These coastal features were created from the terminal features that distinguish this ecoregion from mainland ecoregions include its moderate maritime moraines of Pleistocene ice sheets. Barrier islands protect the mainland from erosion by ocean storms, climate, stunted pine and oak forests, numerous kettle ponds, and unique habitats in salt and freshwater but they are often eroded on their seaward side by wave action and sometimes breached by violent marshes, swamps, bogs, and sand dunes. These landscapes were formed by the advances and retreats of storms or hurricanes. Barrier islands are maintained by eroded sediments carried along shore by ocean three lobes of Pleistocene glaciers. The sands of Long Island accumulated behind Pleistocene glacial currents and deposited on the islands. Typically, two parallel dune zones line the seaward side of terminal moraines as they did on Cape Cod. The outwash plains and fans surrounding the moraines barrier islands. Dune grass, sea rocket, saltwort, and seaside spurge grow in the primary dune zone. contain soils formed from coarse, sandy till. In areas of excessively-drained sand, vegetative diversity is Low shrub thickets composed of bayberry, beach plum, shadbush, mountain laurel, and highbush the frequent fire regime of the central Long New York State. It breeds in sandy-bottomed low because of the dry, nutrient-poor soil and frequent-fire regime. Remnant patches of dwarf pine, blueberry grow in the secondary dune zone. American holly, black gum, red cedar, pitch pine, dwarf pitch pine-oak, and oak-pitch pine woodland occur on a continuum based on moisture availability, beech, sassafras, and lianas of roundleaf sweetbriar occur in moist, protected hollows and swales on woodland canopy may be dominated by that are free of predatory fish and non-native distance to the water table, and fire return interval. Long Island's mild maritime climate produces a long barrier islands, salt marshes are populated built barrier islands and narrow peninsulas. On the bay side of barrier islands and narrow peninsulas. 200-day growing season that is optimal for the cultivation of truck crops and nursery stock. The mainly by smooth and salt-meadow cordgrass. In addition to providing beach recreation for human length of the fire return interval. Photo: Steve road kills, suburban development, pesticides, freshwater Peconic River and coastal ponds support distinctive plant communities as well as some rare visitors, barrier islands serve as important nesting sites for several endangered or threatened birds, Young, NYNHP ertebrates such as the tiger salamander, eastern mud turtle, and banded sunfish.

such as the piping plover, black skimmer, common tern, and least tern.



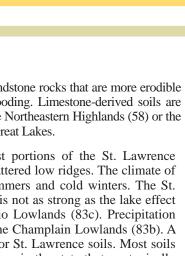






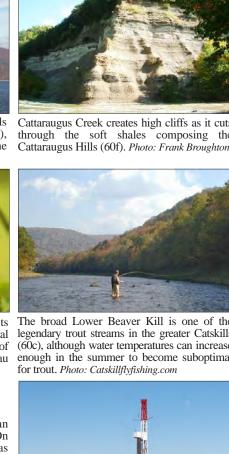
The Ridge and Valley ecoregion has a broad latitudinal extent and a diversity of landscape types. Forested ridges alternate with agricultural valleys. Surface morphology is influenced by lithological characteristics. Ridges are capped by resistant sandstone or conglomerate. Valleys tend to be created on weaker strata, including limestone and shale. Valleys derived from limestone and dolomite have a smoother surface and lower drainage density than those developed in shale. Shale valleys often display a distinctive rolling topography. Soils derived from limestone are fertile and well-suited to agriculture, while those derived from shale typically have a lower agricultural potential. Native vegetation of valleys, slopes, and hilltops is sugar maple/mixed hardwood. Hemlock grows with the hardwoods on cooler and moister sites. The Northern Glaciated Limestone Valleys are broad, flat to somewhat rolling valleys. Soils The Northern Glaciated Limestone Valleys and Terraces ecoregion is a diverse area on the developed over glacial till in this region are shallower, more fertile, and have less clay formation western edge of the Ridge and Valley ecoregion (67), containing mixed rock types and scattered than the soils developed from earlier glacial till in New Jersey. Sinkholes and underground streams karst terrain. In New York, Ecoregion 671 is wedged between the Mongaup Hills in Ecoregion 62b and (karst) have developed in the limestone, reducing surficial drainage density. In karst areas, where surface Catskills Transition (60c) to the west and the Shawangunk Mountains in Ecoregion 67m to the east. Its easily

ecoregions (60c, 62b, and 67m), it is greater than that in other Ridge and Valley limestone valleys. **67k** The Northern Glaciated Shale and Slate Valleys ecoregion contains broad, irregular, rolling to hilly valleys underlain by slaty shale and fine-grained sandstone and covered by glacial drift. Relief, drainage density, surficial runoff, and stream erosion potential are greater than in the limestone conglomerate, and quartzite, called the Shawangunk conglomerate. Rock outcrops and cliffs are valleys of Ecoregion 67j. Resultant stream turbidity and siltation are also greater than in limestone common, especially on high elevation ridges and on the east face, where soil cover is thin or lacking and ecoregions. Ecoregion 67k does not have as much agricultural area as the fertile Northern Glaciated very dry habitats occur. Pitch pine-chestnut oak-scarlet oak forests and pitch pine-scrub oak forests are imestone Valleys (67j). Farms produce small grain, corn, and hay, and woodland occurs on steep slopes. common. These species are well suited to sites with thin, dry, infertile, and silica-rich soil. Pitch pine is ative vegetation is mixed oak-sugar maple-northern hardwood forest. Although much of the valley has better adapted than scarlet oak to ridge tops that are exposed to winter snow and summer fire. Prescribed been cleared for agriculture, there are pockets of ecological significance. Streams and rivers with riparian fire is used as a management tool in the Shawangunks to reduce fuel loads (built up during decades of





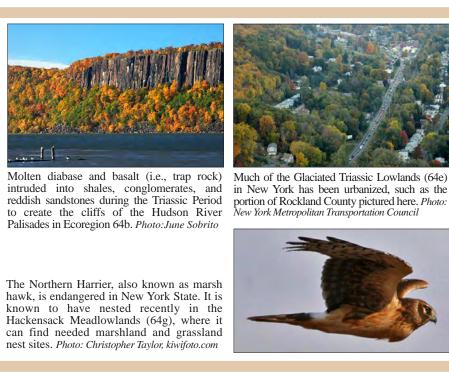
Division of Mineral Resources

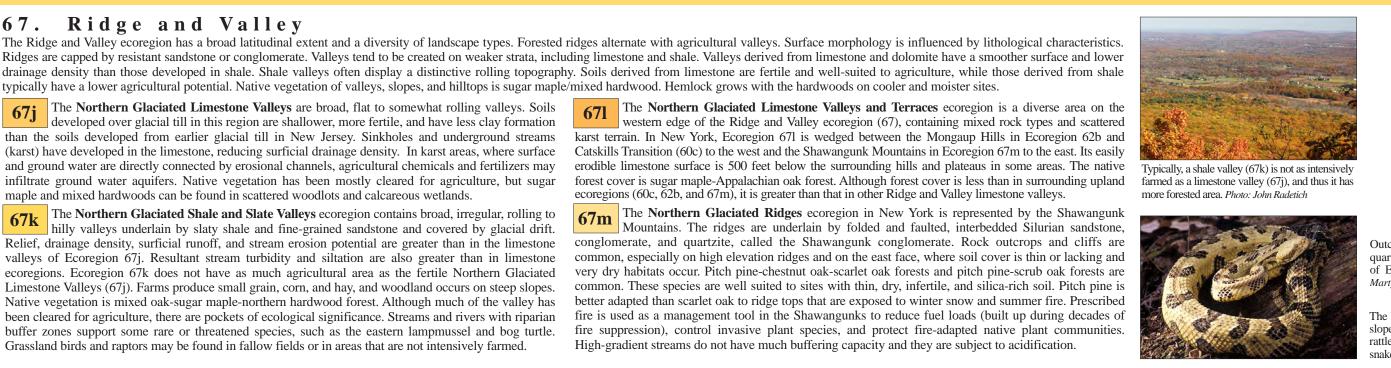






percentage of both hemlock and beech, species that are scarce today. The highlands have cooler summers, the Delaware River marks the western boundary of the forested Mongaup Hills (part of Ecoregion 62b) in New York State. *Photo: Linda Slocum*





The Oswegatchie River is one of several

alvar barrens. Photo: Paul Novak

