ChicoryLane Foundation

Migrating Birds and the 21 “Shrubs To Know”

John B. Smith & ChatGPT 5.5

August-October dietary value, with emphasis on September

Purpose. These stand-alone commentaries are designed for the CLF Open House project and focus on what each listed shrub can offer fall migrants: fruit energy, lipids, carbohydrates, antioxidant-rich pigments, seeds, or insect prey. The attached ChicoryLane list is the organizing framework. Where direct chemical analysis exists for a species, it is identified; where it does not, the commentary avoids inventing a precise nutrient value and instead describes the best-supported ecological role.

September context. Fall migration is an energetically demanding period. Many songbirds switch partly or strongly toward fruit at stopover sites because fruit can be eaten rapidly and converted into migratory fuel. High-lipid fruits are especially energy-dense, while anthocyanins and other phenolic compounds may help birds manage oxidative stress associated with sustained flight. Insectivorous migrants remain strongly dependent on arthropods, so shrubs such as willows and alders can matter even when they do not offer fleshy berries.

How to read the ratings. “September relevance” is an interpretive CLF rating for central Pennsylvania, based on expected fruiting/seed timing and the type of food supplied. It is not a formal botanical or ornithological index.

1. Blackhaw viburnum

Viburnum prunifolium

September relevance: HIGH

Fruit / food appearance: Clusters of oval drupes that progress from pink or reddish to deep blue-black as they ripen. The flesh surrounds a single flattened stone; ripe fruit often has a raisin-like appearance.

Nutritional significance: A fall carbohydrate source with some lipid value typical of dark-fruited viburnums. I found no migration study giving a reliable species-specific fat percentage for V. prunifolium, so a precise number would be misleading. The blue-black skin also indicates phenolic/anthocyanin pigments, potentially relevant as dietary antioxidants, but the strongest antioxidant work is on fruit choice generally rather than this species specifically.

Bird use: Songbirds and gamebirds use the fruit. Robins, catbirds, thrushes, bluebirds and other gape-capable fruit eaters are plausible and commonly reported viburnum users.

Why it is interesting for the Open House: Blackhaw can bridge late summer into fall. Because the fruit is modest in size and held in clusters, it is accessible to a wide range of birds. Its greatest September value is likely as one item in a diverse “fruit buffet,” rather than as a single dominant fuel source.

Evidence note: *Species-specific fruit chemistry is incompletely quantified; qualitative statements are separated from directly measured values.*

2. Nannyberry viburnum

Viburnum lentago

September relevance: MEDIUM

Fruit / food appearance: Oval bluish-black drupes on reddish stalks, usually about one-third inch long, with a relatively large stone. Fruit may persist well beyond first ripening.

Nutritional significance: Primarily a fleshy-fruit energy source. Direct migration-focused nutrient measurements for this species are sparse. Its persistence is ecologically important: fruit can become sweeter after freezing and thawing, which helps explain substantial late-fall and winter use.

Bird use: Many birds and mammals eat nannyberry, but published natural-history accounts suggest it may be less heavily used by peak fall migrants than some earlier-ripening dogwoods or arrowwood viburnum. Jays, crows and winter-resident fruit eaters can be conspicuous users later.

Why it is interesting for the Open House: For a September open-house message, nannyberry is a useful example of how “available fruit” and “preferred migration fuel” are not identical. A berry that remains on the plant may be serving a later seasonal niche.

Evidence note: *Species-specific fruit chemistry is incompletely quantified; qualitative statements are separated from directly measured values.*

3. Arrowwood viburnum

Viburnum dentatum

September relevance: VERY HIGH

Fruit / food appearance: Dense clusters of small blue-black to black drupes, roughly one-third inch long, ripening in late summer and fall.

Nutritional significance: One of the standout fruits on the CLF list. In a well-known autumn-migration study, V. dentatum fruit was about 41.3% fat on a dry-mass basis, unusually high for a temperate fleshy fruit. It also supplied high overall energy. Dark pigments add a likely antioxidant dimension.

Bird use: Eastern Bluebirds, Gray Catbirds, Northern Flickers and other songbirds/gamebirds are documented users; thrushes and other migrant frugivores also exploit viburnums broadly.

Why it is interesting for the Open House: This is a particularly strong September teaching shrub because it illustrates why birds do not treat all berries as nutritionally equivalent: arrowwood combines small, swallowable fruit with unusually high lipid density, exactly the kind of package useful during migratory refueling.

Evidence note: *This entry includes comparative fruit-nutrition findings from migration ecology literature; values differ with site, ripeness and analytical method.*

4. Downy viburnum

Viburnum rafinesqueanum

September relevance: HIGH

Fruit / food appearance: Small dark blue-black drupes in clusters, ripening from late summer into fall.

Nutritional significance: Species-specific chemical data are limited. As with other dark viburnums, the fruit supplies sugars and likely phenolic pigments; it should not automatically be assigned the very high fat value measured for V. dentatum.

Bird use: Gamebirds, songbirds and small mammals eat the berries. Thrushes, catbirds and other generalized fruit eaters are likely users where the shrub fruits heavily.

Why it is interesting for the Open House: Its conservation value is strengthened by being a native, relatively compact woodland-edge shrub. In September it contributes both fruit and structurally dense foraging/cover habitat.

Evidence note: *Species-specific fruit chemistry is incompletely quantified; qualitative statements are separated from directly measured values.*

5. Cranberry viburnum

Viburnum trilobum (often treated as V. opulus var. americanum)

September relevance: MEDIUM-LOW in September

Fruit / food appearance: Bright red, translucent berry-like drupes in clusters. They often remain on the shrub into late fall or winter.

Nutritional significance: The fruit tends to be more carbohydrate-rich and lower in fat than the best migratory fuels on this list. Persistence suggests that birds often postpone eating it until preferred fruits have diminished or weather has altered palatability.

Bird use: Robins, waxwings, grouse and other fruit-eating birds use the fruit, especially later in the season.

Why it is interesting for the Open House: This species is an excellent contrast with arrowwood: both are viburnums, but their timing, color, persistence and apparent preference differ. For September, retained red fruit may be visible yet not heavily harvested.

Evidence note: *Species-specific fruit chemistry is incompletely quantified; qualitative statements are separated from directly measured values.*

6. Silky dogwood

Cornus amomum

September relevance: HIGH

Fruit / food appearance: Round blue to blue-white drupes in tight clusters on reddish stalks, usually ripening in late summer.

Nutritional significance: Migration studies classify silky dogwood fruit as relatively low in fat but high in carbohydrates, with medium overall energy. Thus it can support rapid refueling even though it is not as lipid-dense as gray dogwood or arrowwood viburnum.

Bird use: Fruit is used by many songbirds and gamebirds. Catbirds, thrushes, robins and other migrant fruit eaters commonly exploit dogwoods.

Why it is interesting for the Open House: Silky dogwood is often abundant in moist edges and wetlands, exactly the kind of dense stopover habitat that can combine fruit, insects, cover and water nearby. Fruit can disappear quickly when migrants find it.

Evidence note: *This entry includes comparative fruit-nutrition findings from migration ecology literature; values differ with site, ripeness and analytical method.*

7. Gray dogwood

Cornus racemosa

September relevance: VERY HIGH

Fruit / food appearance: Small white drupes held on striking red pedicels; fruit ripens mainly August-October. The visual combination of white fruit and red stems is distinctive.

Nutritional significance: A high-value migrant food. Comparative studies classify gray dogwood as high in fat and high in energy; one commonly cited analysis reports roughly 35% fat on a dry-mass basis. The fruit therefore delivers concentrated calories in a small package.

Bird use: Thrushes, catbirds, vireos, robins, bluebirds and many other fruit-eating birds use dogwood fruit. Gray dogwood fruit is often removed rapidly during fall migration.

Why it is interesting for the Open House: At ChicoryLane this may be one of the most important shrubs to watch in September. Its ecological role is not just “berries for birds,” but specifically high-energy fuel arriving at the same seasonal moment when southbound migrants must replenish fat stores.

Evidence note: *This entry includes comparative fruit-nutrition findings from migration ecology literature; values differ with site, ripeness and analytical method.*

8. Red osier dogwood

Cornus sericea

September relevance: HIGH

Fruit / food appearance: White to cream-colored drupes in clusters, contrasting with red twigs; fruits mature in late summer into fall.

Nutritional significance: Comparative work places red-osier dogwood in a middle range for both fat and carbohydrates but high in total energy. Protein can be adequate for the migratory period even when it would be marginal for growth or reproduction at other times.

Bird use: A broad suite of birds uses the fruit; wetland and edge migrants also forage through the shrub for insects.

Why it is interesting for the Open House: Red osier dogwood shows why fruit color alone is a poor guide to food quality. Its pale fruits lack the obvious dark anthocyanin signal of blue-black berries, yet they still provide substantial migratory energy.

Evidence note: *This entry includes comparative fruit-nutrition findings from migration ecology literature; values differ with site, ripeness and analytical method.*

9. Alternate-leaf dogwood

Cornus alternifolia

September relevance: HIGH

Fruit / food appearance: Blue-black drupes in loose clusters on reddish stalks. The berries are small and visually conspicuous against the plant's layered branching.

Nutritional significance: Direct species-specific migration chemistry is limited. Other Cornus fruits demonstrate that dogwoods can be unusually energy-rich, but that value varies greatly by species. Dark fruit likely contains anthocyanins/phenolics, adding potential antioxidant value.

Bird use: Many birds eat the fruit; thrushes, catbirds and other woodland fruit eaters are especially appropriate birds to watch around a fruiting plant.

Why it is interesting for the Open House: Because alternate-leaf dogwood is a woodland small tree/shrub, it can supply fruit within shaded forest structure rather than only at an open edge. That makes it useful in a heterogeneous stopover landscape.

Evidence note: *Species-specific fruit chemistry is incompletely quantified; qualitative statements are separated from directly measured values.*

10. Flowering dogwood

Cornus florida

September relevance: VERY HIGH

Fruit / food appearance: Glossy red oval drupes, usually clustered in groups, becoming conspicuous as foliage turns red-purple in fall.

Nutritional significance: Flowering dogwood fruit is widely characterized as lipid-rich and energy-dense; reported fat values are roughly in the mid-20% range on a dry-mass basis. It also contains minerals such as calcium. Its red pigments include antioxidant-active compounds, although migration physiology studies usually treat antioxidant intake at the fruit-selection level rather than this species alone.

Bird use: Wood Thrushes, American Robins, Eastern Bluebirds, catbirds, flickers and many other birds consume the fruit.

Why it is interesting for the Open House: This is a classic September-October migration food because its red drupes ripen as many woodland migrants are moving south. It is also a good reminder that dogwoods support birds twice: directly with fruit and indirectly as host plants for insects.

Evidence note: *This entry includes comparative fruit-nutrition findings from migration ecology literature; values differ with site, ripeness and analytical method.*

11. Shrub willow

Salix spp.

September relevance: HIGH, but mainly as insect habitat

Fruit / food appearance: Willows do not produce berries. Female flowers mature into capsules containing many tiny, cottony seeds. By September most seed production is past for many species.

Nutritional significance: The fall dietary value is therefore not fruit chemistry. Native willows support rich arthropod communities - caterpillars, aphids, leafhoppers, beetles and other insects - that supply protein and fat to insectivorous migrants.

Bird use: Warblers, kinglets, vireos, flycatchers and other foliage-gleaning or aerial-feeding migrants frequently use willow thickets. Wilson's Warblers are strongly associated with shrubby streamside habitat during migration in many regions.

Why it is interesting for the Open House: For the open house, willow is one of the most important "non-berry" entries. A September bird can refuel efficiently by moving through a willow canopy harvesting insects even though the shrub offers essentially no fleshy fruit.

Evidence note: *This plant is not a fleshy-fruit source; the commentary emphasizes insect prey, seeds and habitat rather than berry chemistry.*

12. Silky willow

Salix sericea

September relevance: HIGH, but mainly as insect habitat

Fruit / food appearance: No berries; like other willows it produces small capsules with minute wind-dispersed seeds after spring catkins.

Nutritional significance: Its dietary contribution to fall migrants is chiefly the arthropods living on foliage and stems, not the seeds themselves. Insects provide protein, essential amino acids and fats that fruit alone cannot supply.

Bird use: Warblers, vireos, kinglets and other small insectivores are the birds most likely to benefit. Birds may also use the dense riparian structure for protection during stopover.

Why it is interesting for the Open House: Because silky willow is a native wet-site species, its value is ecological as much as nutritional: moist willow patches can concentrate insects and provide sheltered foraging near water.

Evidence note: *This plant is not a fleshy-fruit source; the commentary emphasizes insect prey, seeds and habitat rather than berry chemistry.*

13. Pussy willow

Salix discolor

September relevance: MEDIUM-HIGH in fall; very high in spring

Fruit / food appearance: No fleshy berries. The familiar catkins are a spring feature; seeds are tiny and wind-dispersed.

Nutritional significance: In September its role is insect support rather than direct fruit or seed calories. Willows are especially valuable host plants for many insects, and migrating insectivores exploit those prey.

Bird use: Warblers and kinglets can feed on insects associated with willows; chickadees and other gleaners also use them. Pussy willow catkin fluff is used by some birds for nesting, though that is a spring rather than migration-season service.

Why it is interesting for the Open House: Pussy willow illustrates seasonal complementarity: it is exceptionally important to early-season pollinators and birds in spring, while in late summer/fall its leafy thicket remains a prey-rich foraging substrate.

Evidence note: *This plant is not a fleshy-fruit source; the commentary emphasizes insect prey, seeds and habitat rather than berry chemistry.*

14. Corkscrew willow

Salix matsudana

September relevance: LOW-MEDIUM

Fruit / food appearance: No berries; capsules and cottony seeds are the willow reproductive pattern. This horticultural willow is native to northeastern Asia rather than Pennsylvania.

Nutritional significance: Fall value is primarily structural cover and whatever arthropod prey the tree supports. Because it is non-native, it should not be assumed to support the same diversity of specialist insects as native Salix species.

Bird use: General insectivorous birds may forage in it, but there is little reason to identify a particular migrant as preferring corkscrew willow itself.

Why it is interesting for the Open House: For interpretation, this is a useful comparison plant: “willow” is not a single ecological category. Native species generally offer the stronger coevolved food-web relationships.

Evidence note: *This plant is not a fleshy-fruit source; the commentary emphasizes insect prey, seeds and habitat rather than berry chemistry.*

15. Crack willow

Salix fragilis

September relevance: LOW-MEDIUM

Fruit / food appearance: No berries. It bears willow capsules and tiny wind-dispersed seeds; it is Eurasian and widely naturalized.

Nutritional significance: As with corkscrew willow, September dietary value is mainly indirect through insects and habitat structure. Native willow species are the better-supported choice when the goal is maximizing native insect prey.

Bird use: A range of generalist insectivorous birds may forage through crack willow, particularly along streams, but species-specific preference is not well established.

Why it is interesting for the Open House: Crack willow can dominate riparian sites in some regions, so its presence raises a management question: a tree may provide immediate cover while still being less desirable than native willow communities for long-term ecological diversity.

Evidence note: *This plant is not a fleshy-fruit source; the commentary emphasizes insect prey, seeds and habitat rather than berry chemistry.*

16. American plum

Prunus americana

September relevance: MEDIUM-HIGH

Fruit / food appearance: Round to oval plums, usually yellow to red or purplish red, about an inch across; they ripen in August or September and have a single large pit.

Nutritional significance: The fruit is sugar-rich and water-rich rather than a tiny, exceptionally high-fat migrant berry. It can supply readily available carbohydrate, but large fruit size means many small songbirds feed by pecking rather than swallowing whole.

Bird use: Gamebirds and larger fruit-eating birds use wild plums; smaller birds may feed on damaged or softened fruit. The dense thorny thickets also harbor insects and offer excellent cover.

Why it is interesting for the Open House: American plum broadens the food spectrum. It may not equal arrowwood or gray dogwood as compact migratory fuel, but a fruiting thicket can provide carbohydrate, insect prey and safe resting habitat simultaneously.

Evidence note: *Species-specific fruit chemistry is incompletely quantified; qualitative statements are separated from directly measured values.*

17. Speckled alder

Alnus incana

September relevance: MEDIUM, mostly seed/insects rather than fruit

Fruit / food appearance: No berries. Female flower clusters mature into small woody cone-like structures containing tiny winged nutlets/seeds that persist into fall and winter.

Nutritional significance: For September migrants, the primary value is likely insect prey in moist alder thickets. As fall advances, the seeds become important to seed-eating birds rather than classic frugivorous migrants.

Bird use: Alder thickets are used by warblers and other insectivores; later, finches and siskins can feed on alder seed. Blackpoll Warblers and other northern species commonly use alder/willow thickets in parts of their annual cycle.

Why it is interesting for the Open House: Alder is an excellent demonstration that “dietary plant value” can shift during the season: September foliage supports insects, while the persistent cones become a seed bank for later birds.

Evidence note: *This plant is not a fleshy-fruit source; the commentary emphasizes insect prey, seeds and habitat rather than berry chemistry.*

18. Spicebush

Lindera benzoin

September relevance: VERY HIGH

Fruit / food appearance: Bright glossy red oval drupes, about 1 cm long, borne on female plants from late summer into fall. Plants are dioecious, so both male and female plants are needed nearby for fruiting.

Nutritional significance: A premier migration fruit. Comparative studies and field guidance consistently rank spicebush as high in lipids and high in energy, with relatively lower carbohydrate than elderberry or silky dogwood. The red fruit also contains antioxidant-active pigments and phenolic compounds.

Bird use: Wood Thrushes are especially associated with spicebush fruit; more than twenty bird species are reported to use it, including other thrushes and woodland songbirds.

Why it is interesting for the Open House: For September at ChicoryLane, spicebush is close to an ideal teaching example: the fruit ripens at migration time, is small enough to swallow quickly, is energy-dense, and occurs in shaded woodland understory used by migrating thrushes.

Evidence note: *This entry includes comparative fruit-nutrition findings from migration ecology literature; values differ with site, ripeness and analytical method.*

19. Elderberry

Sambucus canadensis

September relevance: HIGH

Fruit / food appearance: Large flat-topped clusters of many small purple-black berries (botanically drupes), often ripening from August into September.

Nutritional significance: Comparative migration studies classify elderberry as low in fat but high in carbohydrates, with medium overall energy. Dark skins are rich in anthocyanin-type pigments, so elderberry can combine rapid sugar energy with antioxidant compounds.

Bird use: Catbirds, robins, thrushes, orioles, tanagers and many other fruit-eating songbirds take elderberries. Heavy fruit clusters can be stripped rapidly.

Why it is interesting for the Open House: Elderberry complements high-fat foods. A migrant does not require every meal to be lipid-rich; sugar-rich fruit can provide immediately usable energy while mixed fruit diets broaden micronutrient and antioxidant intake.

Evidence note: *This entry includes comparative fruit-nutrition findings from migration ecology literature; values differ with site, ripeness and analytical method.*

20. Virginia creeper

Parthenocissus quinquefolia

September relevance: VERY HIGH

Fruit / food appearance: Clusters of small blue-black to purple-black berries on red stems, ripening late summer into fall. The five-part leaves often turn brilliant red at the same time.

Nutritional significance: Another exceptionally valuable migration fruit. A 2007 study measured about 23.6% fat on a dry-mass basis and high overall energy. The dark berries also contain phenolic/anthocyanin compounds. The fruit is not suitable for human consumption, but birds readily use it.

Bird use: Thrushes, catbirds, robins, bluebirds, vireos and many other fruit-eating birds consume Virginia creeper berries.

Why it is interesting for the Open House: This vine is easy to overlook when attention is fixed on shrubs. In September its vertical spread over trees, fences and edges can place abundant high-energy fruit at multiple heights, making it a major stopover food source.

Evidence note: *This entry includes comparative fruit-nutrition findings from migration ecology literature; values differ with site, ripeness and analytical method.*

21. Winterberry

Ilex verticillata

September relevance: MEDIUM in September; HIGH later

Fruit / food appearance: Bright red round drupes packed along bare stems; on female plants they often persist after leaf drop and can remain into winter.

Nutritional significance: Winterberry is generally not regarded as one of the highest-fat migration fruits. Its major strength is persistence: it becomes increasingly valuable as softer, more preferred fall fruits disappear. Red pigments provide phenolic/antioxidant compounds, but species-specific migration chemistry is less well quantified than for arrowwood or Virginia creeper.

Bird use: Robins, bluebirds, catbirds, cedar waxwings and other fruit eaters use winterberry, often heavily later in fall and winter.

Why it is interesting for the Open House: For a September-centered story, winterberry is best presented as "food in reserve." Its berries may already be visible, but their greatest ecological contribution often comes after peak September fruit supplies have been depleted.

Evidence note: *Species-specific fruit chemistry is incompletely quantified; qualitative statements are separated from directly measured values.*

Selected Sources and Research Notes

ChicoryLane source list: "ChicoryLane Shrubs To Know," uploaded CLF list (2025). The 21 beneficial entries and botanical names in this document follow that list.

Smith, S. B., et al. (2007): "Fruit quality and consumption by songbirds during autumn migration." Wilson Journal of Ornithology 119:419-428. Reports dry-mass fat values including Viburnum dentatum 41.3% and Parthenocissus quinquefolia 23.6%.

Smith, S. B., et al. (2013): "The Value of Native and Invasive Fruit-Bearing Shrubs for Migrating Songbirds." Northeastern Naturalist 20:171-184. Includes comparative use of native dogwoods and invasive fruit.

Lincoln Park Zoo / Smith migration-planting synthesis: Recommended Plantings for Migratory Songbird Habitat Management. Summarizes relative fat, carbohydrate and energy values for arrowwood viburnum, gray/silky/red-osier dogwoods, elderberry, spicebush and Virginia creeper.

Bolser, J. A., et al. (2013): "Birds select fruits with more anthocyanins and phenolic compounds during autumn migration." Wilson Journal of Ornithology 125:97-108.

DeMoranville, K. J., et al. (2022): "Flight and Dietary Antioxidants Influence Antioxidant Expression and Activity in a Migratory Songbird." Integrative Organismal Biology. Reviews evidence for anthocyanins and oxidative physiology during migration.

Lady Bird Johnson Wildflower Center: Native Plant Information Network species accounts used for fruit appearance, phenology, and broad wildlife use for Viburnum, Cornus, Prunus, Alnus, Salix, Sambucus and Ilex species.

Cornell Lab of Ornithology / All About Birds: Species accounts used for habitat associations of warblers and other migrants with willow/alder thickets.

National Audubon Society: Native-plant guidance used for willow-associated insect prey and broad bird-plant relationships.

USDA Forest Service research: Stopover ecology literature used for the importance of fruit, arthropods, willow/riparian habitat and migratory refueling.

Interpretive caution. Fruit chemistry changes with ripeness, weather, soil, genotype and analytical method. A single percentage should therefore be treated as evidence of relative nutritional strategy, not as a fixed property of every berry on every plant. Likewise, "preference" varies with local abundance, competition, bird gape size, digestive physiology and what alternative foods are available at a stopover site.

Shrubs to Know