

## Science Wild bees are picking meals, not just flowers

A long-term field study in the Colorado Rockies followed eight species of wild bumblebees for eight years. Week by week, the team noted which flowers the bees visited for pollen, then collected pollen from those same plants to measure the major nutrients inside: protein, fats, and carbohydrates. In plain terms, they built a map of “what is on the menu” in a mountain meadow over the season and “what each bee species puts in its basket.”

That work appears in the journal *Proceedings of the Royal Society B* and was led by researchers at Northwestern University and the Chicago Botanic Garden. The paper’s title is “Nutrient niche dynamics among wild pollinators.”

The big picture result

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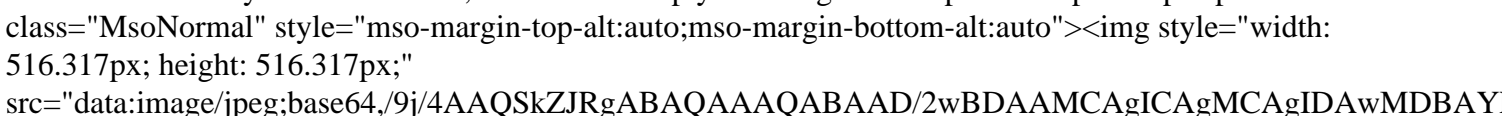
Bees are not grazing at random. The study found two broad diet patterns, or “nutrient niches.” One set of species consistently collected pollen with higher protein and lower in fats and sugars. The other set leaned toward pollen with less protein and more fats and sugars

the niche a species used aligned with its body form, especially tongue length. Longer-tongued species tended to go for higher-protein pollen. Shorter-tongued species tended to pick pollen richer in fats and carbohydrates.

The menu itself changes across the year. Early spring flowers often carry more protein-rich pollen, which makes sense when colonies are raising their first young. By late summer, many flowers on offer, especially from aster relatives, skew toward more fats and sugars. The researchers also report a striking spread in protein across plant species, ranging from approximately 17 percent to about 86 percent. In other words, not all pollen is equal.

Why this matters for bee health

Nutrition is as basic for bees as it is for us. Protein helps build bodies. Carbohydrates and fats are fuel. The study suggests that bee species reduce competition and meet their needs by dividing up the nutrient landscape, not just the types of flowers. It also indicates that a colony’s needs shift over time. As colonies move from a founding queen in spring to a workforce of foragers in summer, what counts as a “good” pollen target can change. This is a practical point for conservation. If a place loses early protein sources, colonies may start the season on a poor diet even if late-season flowers are abundant. Conversely, if only early protein-rich flowers are planted, bees may face an energy gap later in the year. The authors and outside experts quoted in the coverage argue for focusing on nutritional diversity in conservation, rather than simply counting flower species.



data-filename="Generated Image August 31, 2025 - 4\_02PM.jpeg"><span style="font-family:" times="" new="" roman",serif;mso-fareast-font-family:"times="" roman";="" mso-font-kerning:0pt;mso-ligatures:none;mso-fareast-language:en-gb=""><br></span></p><p class="MsoNormal" style="mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;mso-outline-level:2"><b><span style="font-size:18.0pt;font-family:" times="" new="" roman",serif;="" mso-fareast-font-family:"times="" roman";mso-font-kerning:0pt;mso-ligatures:="" none;mso-fareast-language:en-gb="">Simple takeaways for gardens, parks, and roadsides</span></b></p> <p class="MsoNormal" style="mso-margin-top-alt:auto;mso-margin-bottom-alt:auto"><span style="font-family:" times="" new="" roman",serif;mso-fareast-font-family:"times="" roman";="" mso-font-kerning:0pt;mso-ligatures:none;mso-fareast-language:en-gb="">You can act on this science without a lab.</span></p> <ul type="disc"><li class="MsoNormal" style="mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;mso-list:l0 level1 lfo1;tab-stops:list 36.0pt"><span style="font-family: " times="" new="" roman",serif;mso-fareast-font-family:"times="" roman";="" mso-font-kerning:0pt;mso-ligatures:none;mso-fareast-language:en-gb="">Plant for the calendar. Aim for a steady bloom from early spring to late summer. Include early plants that tend to offer protein-rich pollen, then follow with late-season asters and their relatives that provide more fats and sugars. This supports changing needs through the season. </span></li><li class="MsoNormal" style="mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;mso-list:l0 level1 lfo1;tab-stops:list 36.0pt"><span style="font-family: " times="" new="" roman",serif;mso-fareast-font-family:"times="" roman";="" mso-font-kerning:0pt;mso-ligatures:none;mso-fareast-language:en-gb="">Mix flower shapes. Bees with long tongues and short tongues reach different blossoms. A variety of shapes means a variety of accessible foods.</span></li><li class="MsoNormal" style="mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;mso-list:l0 level1 lfo1;tab-stops:list 36.0pt"><span style="font-family: " times="" new="" roman",serif;mso-fareast-font-family:"times="" roman";="" mso-font-kerning:0pt;mso-ligatures:none;mso-fareast-language:en-gb="">Think in meals, not just flowers. Lists labeled “bee-friendly” can still fall short if the nutrient mix becomes lopsided over time. Try to cover both ends: protein in spring, energy later. </span></li></ul> <p class="MsoNormal" style="mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;mso-outline-level:2"><b><span style="font-size:18.0pt;font-family:" times="" new="" roman",serif;="" mso-fareast-font-family:"times="" roman";mso-font-kerning:0pt;mso-ligatures:="" none;mso-fareast-language:en-gb="">What the study does not claim</span></b></p> <p class="MsoNormal" style="mso-margin-top-alt:auto;mso-margin-bottom-alt:auto"><span style="font-family:" times="" new="" roman",serif;mso-fareast-font-family:"times="" roman";="" mso-font-kerning:0pt;mso-ligatures:none;mso-fareast-language:en-gb="">This research does not suggest that every bee species fits neatly into one category at all times. It reports broad patterns seen in one mountain ecosystem and shows that species and even colonies can shift through the year. It also does not give a perfect shopping list for every region. Local plant communities differ, and pollen nutrition varies among species. The safe conclusion is modest and practical. Pay attention to nutrient balance and timing when you plan plantings for pollinators. </span></p> <p class="MsoNormal" style="mso-margin-top-alt:auto;mso-margin-bottom-alt:auto;mso-outline-level:2"><b><span style="font-size:18.0pt;font-family:" times="" new="" roman",serif;="" mso-fareast-font-family:"times="" roman";mso-font-kerning:0pt;mso-ligatures:="" none;mso-fareast-language:en-gb="">A plain-language bottom line</span></b></p> <p class="MsoNormal" style="mso-margin-top-alt:auto;mso-margin-bottom-alt:auto"><span style="font-family:" times="" new="" roman",serif;mso-fareast-font-family:"times="" roman";="" mso-font-kerning:0pt;mso-ligatures:none;mso-fareast-language:en-gb="">Picture a meadow as a grocery store. The shelves change with the season. Some aisles stock “protein staples,” others stock “energy snacks.” Wild bumble bees are not wandering the store at random. Over the years of watching, the researchers observed that different species tend to shop in different aisles and that the store itself rotates its stock from spring to late summer. For healthy bees, we need stores that stay open throughout the season and maintain a balanced mix on the shelves. That means planting and restoring with nutrition in mind, not just color and bloom counts. It also means ensuring that bees with different body shapes can access what they need. The science presented here is specific to one landscape, but the message it conveys applies to many. Feed the whole bee community, all season long, with the right mix at the right time.</span></p><p><style>@font-face {font-family:Wingdings; panose-1:5 0 0 0 0 0 0 0 0; mso-font-charset:77; mso-generic-font-family:decorative; mso-font-pitch:variable; mso-font-signature:3 0 0 0 -2147483647 0;}@font-face {font-family:"Cambria Math"; panose-1:2 4 5 3 5 4 6 3 2 4; mso-font-charset:0; mso-generic-font-family:roman; mso-font-pitch:variable; mso-font-signature:-536870145 1107305727 0 0 415 0;}@font-face

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