Wildflowers of Interior Alaska

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Rev 4 – checked by professional botanist and one species name corrected.

DEDICATION AND THANKS

This work is dedicated, first of all, to my life-partner, Kazuya Numazawa. He always keeps my interest in photography up and makes me keep striving for the perfect photo. He also often makes me think of the expression "when the going gets tough, the tough keep going." Without my partner, it has to also be noted that I most likely would not have seen many of these flowers/plants.

Secondly, it is dedicated to my mother and father, bless them, for tolerating and even encouraging my photography hobby from the time I was 12 years old.

And, finally, it is dedicated to our friends who have encouraged us to create books of photographs which we have taken while engaging in our adventures.

Sincere thanks go to J. Chris Maisch for his brilliant suggestion to also number the text portion of each species, so that when readers notice that, the photo for *Boschniakia rossica* is numbered "17" they can then search for the "17" text, which is not on the same page as the photo. His suggestion also gave me the idea of showing page numbers on the pages titled "List of Species Included".

Some other books by Daniel H. Wieczorek and Kazuya Numazawa

"*Climbing a Few of Japan's 100 Famous Mountains – Volume 1: Mt. Daisetsu (Mt. Asahidake)*", Paperback, Hardcover and Kindle Editions

"*Climbing a Few of Japan's 100 Famous Mountains – Volume 2: Mt. Chokai (Choukai)*"; Paperback, Hardcover and Kindle Editions

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"*Climbing a Few of Japan's 100 Famous Mountains – Volume 12: Mt. Tate (Tateyama)*"; Paperback, Hardcover and Kindle Editions

"*Climbing a Few of Japan's 100 Famous Mountains – Volume 13: Mt. Yatsugatake (Mt. Akadake)*"; Paperback, Hardcover and Kindle Editions

"*Outdoor Photography of Japan: Through the Seasons*"; Paperback, Hardcover and Kindle Editions

"*Japan Outdoors*"; 78 Pages; October 2015; Paperback, Hardcover and Kindle Editions

"*Outdoor Photography of Japan: Through the Seasons – Volume 1 of 3 (Winter & Spring)*"; Paperback, Hardcover and Kindle Editions

"*Outdoor Photography of Japan: Through the Seasons – Volume 2 of 3 (Summer)*"; Paperback, Hardcover and Kindle Editions

"*Outdoor Photography of Japan: Through the Seasons – Volume 3 of 3 (Autumn)*"; Paperback, Hardcover and Kindle Editions

"*Samurai Seasons Exposed: Nipponese Outdoor Rhapsodies*"; Paperback, Hardcover and Kindle Editions

FOREWORD

What is the purpose of this book? It is not intended to be a "field guide" to the wildflowers of Interior Alaska. Rather, it is intended to show you some of the amazing beauty that can be found when you are out for a hike in the Interior portion of Alaska. It is also not intended to show every wildflower which can be found in Interior Alaska. What is contained herein is only a sample of the beauty and of the species which you can find here. The goal of this book is to give you an idea of the species of wildflowers that are here as well as to show you some amazing photographs. The photos are not tiny little things similar to those found in most of the books which are used as field guides for plant identification. The photos you'll find here are all quite large and some of them are cropped in such a way as to show the smallest parts of the flowers. This should probably be considered a coffee-table book of beautiful flower photos and at the same time it should also help you identify many of the flowers which you will find here.

The specific areas visited in this book include, but are not limited to, the following areas. Probably our favorite wildflower area is along the Steese Highway (Alaska Route 6) between about milepost 85 (Twelvemile Summit) and milepost 107 (Eagle Summit Wayside), as well as along the Pinnell Mountain Trail, which is a trail through the mountains between Twelvemile Summit and Eagle Summit. We have spent a great deal of time in this area. Next on our list of favorites is the Elliott Highway (Alaska Route 2) between milepost 27.6 (Wickersham Dome Trail parking lot) and milepost 39.3 (Grapefruit Rocks parking lot). Of course, we have spent many hours on the Wickersham Dome Trail and on the Upper Grapefruit Rocks Trail, plus a bit of time on the Lower Grapefruit Rocks Trail. We suppose that our next favorite area is along the Chena Hot Springs Road milepost 48.9 (Angel Rocks Trail parking lot) and the end of the Chena Hot Springs Road at milepost 56.5 (Chena Hot Springs).

List of Species Included (in alphabetical order – with page numbers)

As you can see from the species list above, we have photos of 111 species of wildflowers which we intend to show you in this book. There are many methods which other authors use to show the species order in wildflower books. Some authors arrange them by flower color, but we do not favor that method as it separates species that logically should fall together, for example, should all of the violets (*Viola* sp.) be together or should the yellow flowered species be separated from the violet-colored species by 100 pages or so? We feel that all *Viola* sp. should be together.

Some authors separate the flowers based upon the month in which the blooms are generally found, but here in Interior Alaska, practically everything is found for such a short period that the listing of species by month of flowering doesn't make a great deal of sense.

Another method we have seen used is, of course, the separation of species by specific location. We have seen most of the species which are included here in several widely scattered locations, so this also does not seem like a good idea to us.

Of course there are also books which list the species, based upon corolla or inflorescence type, for example regular, irregular, bell, urn, raceme, panicle and so on, but we do not like this method either.

A method used by several authors is alphabetical within family. This makes good sense and it is a method which appeals to us just a bit, but not enough to do it that way for this book.

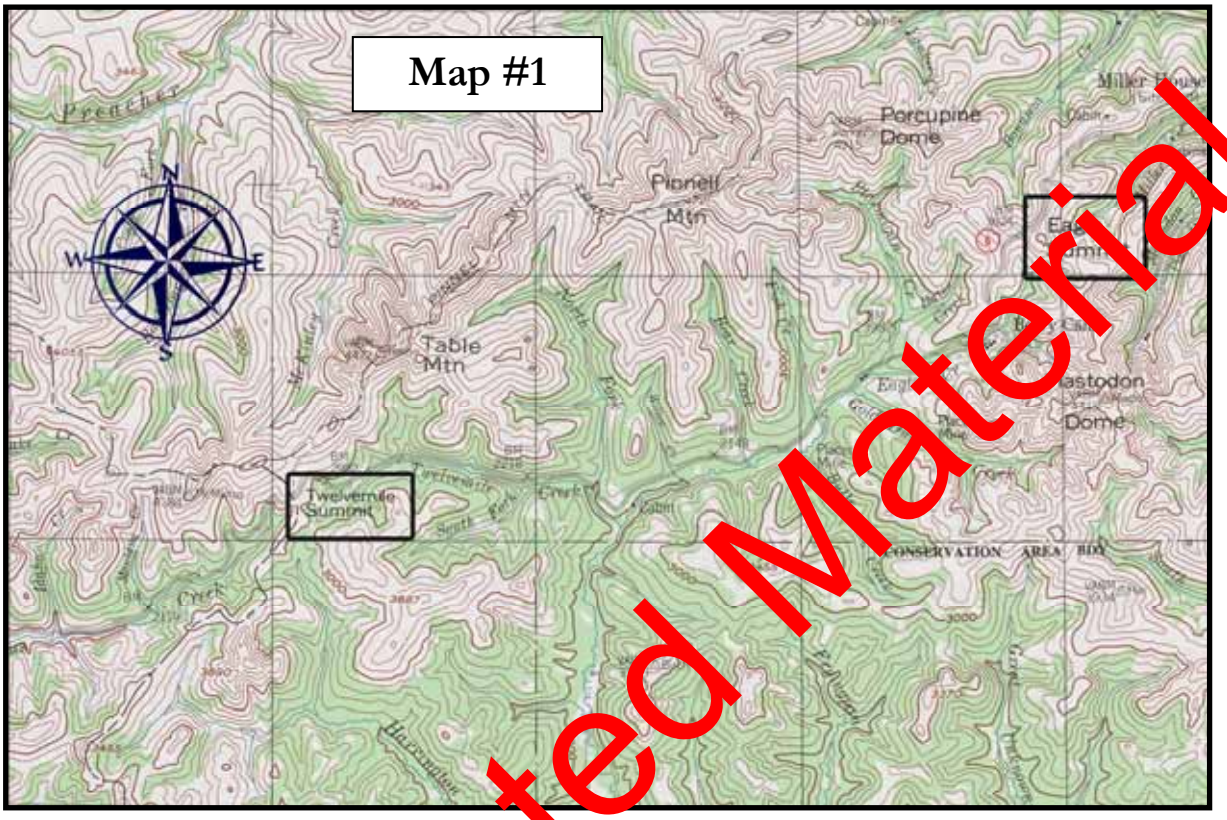
The method we have elected to use in this book is strictly alphabetical by genus and species name, just the way you see them listed above. This seems like a good method, despite the fact that many people do not know an *Anemone* from a *Viola*. We believe that after thumbing through this book a few times on your wildflower adventures that you will become more able to identify plants and flowers by scientific name if we use this method, and of course, it should be the ultimate goal of wildflower hunters to be able to know and recognize the plants we see and discover by scientific name. The scientific name is the name that the people in Maine, Alabama, Alaska, Russia, Japan, India, and every other location will recognize.

“Mountains are the cathedrals where I practice my religion.”
— Anatoli Boukreev

“Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you, and the storms their energy, while cares will drop away from you like the leaves of Autumn.”
— John Muir, The Mountains of California

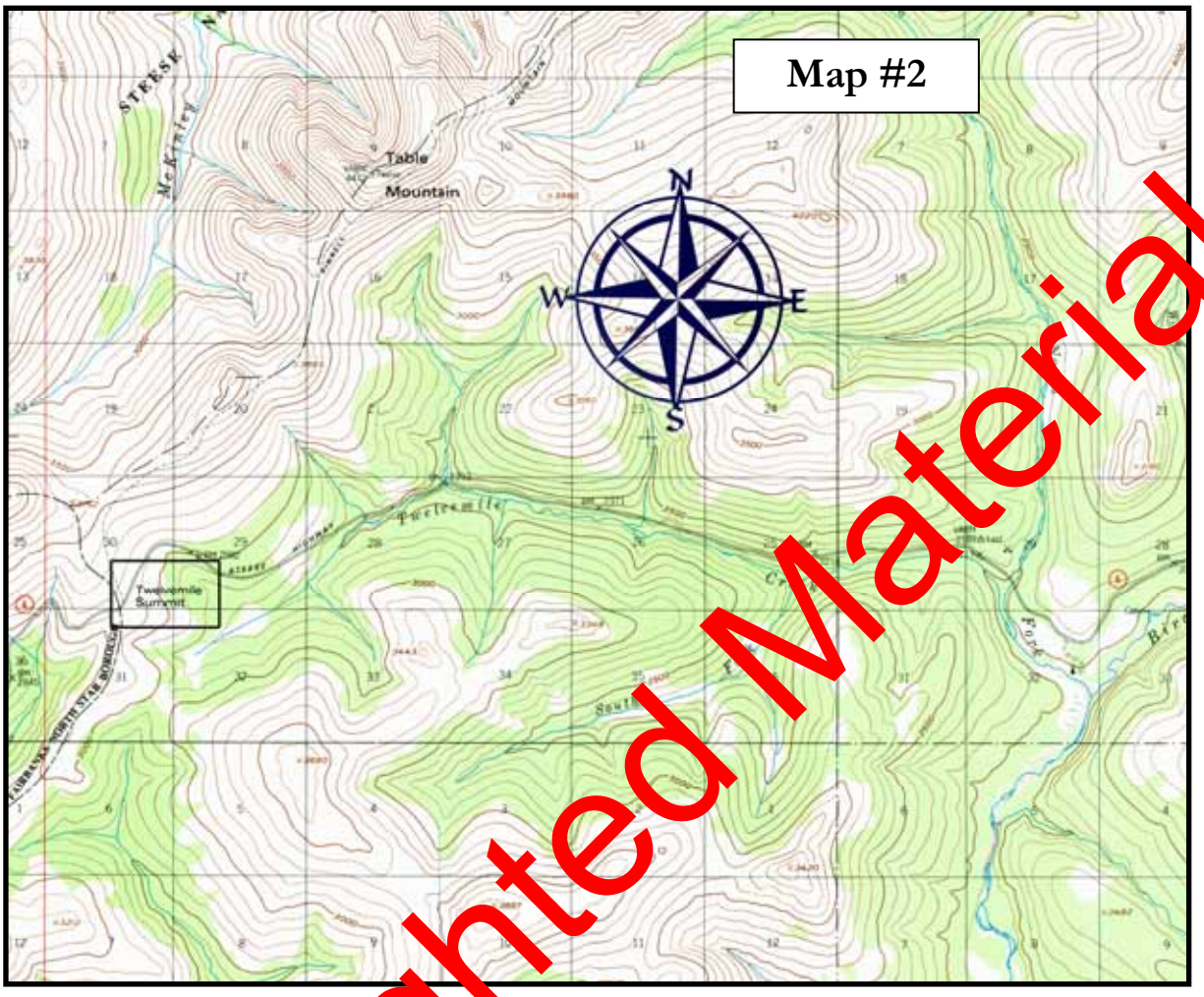
“Chasing angels or fleeing demons, go to the mountains.”
— Jeffrey Rasley

MAPS



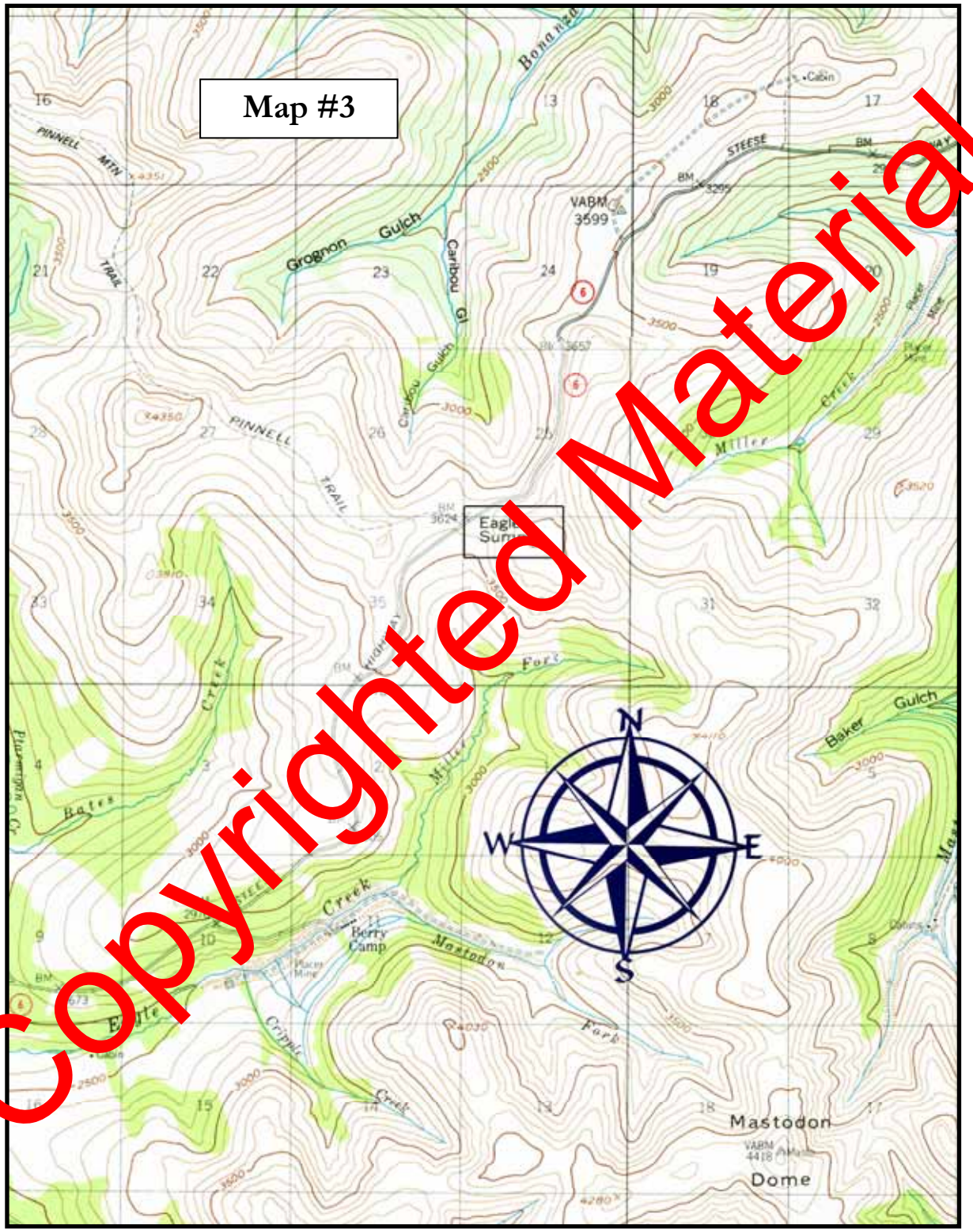
Just above is a 1:250,000 scale map of the Steese Highway from a short distance before Twelvemile Summit to just beyond Eagle Summit. If you look closely, you can find the Pinnell Mountain Trail. The Pinnell Mountain Trail officially starts at Eagle Summit and extends approximately 27 miles to Twelvemile Summit. There are mileposts every mile along this trail. We have hiked the first five miles, starting at Eagle Summit to just before Porcupine Dome, and found many of the species of wildflowers shown in this book. We have also hiked from the Twelvemile Summit end of the trail, also about five miles, up to Table Mountain. This trail is not too strenuous of a hike.

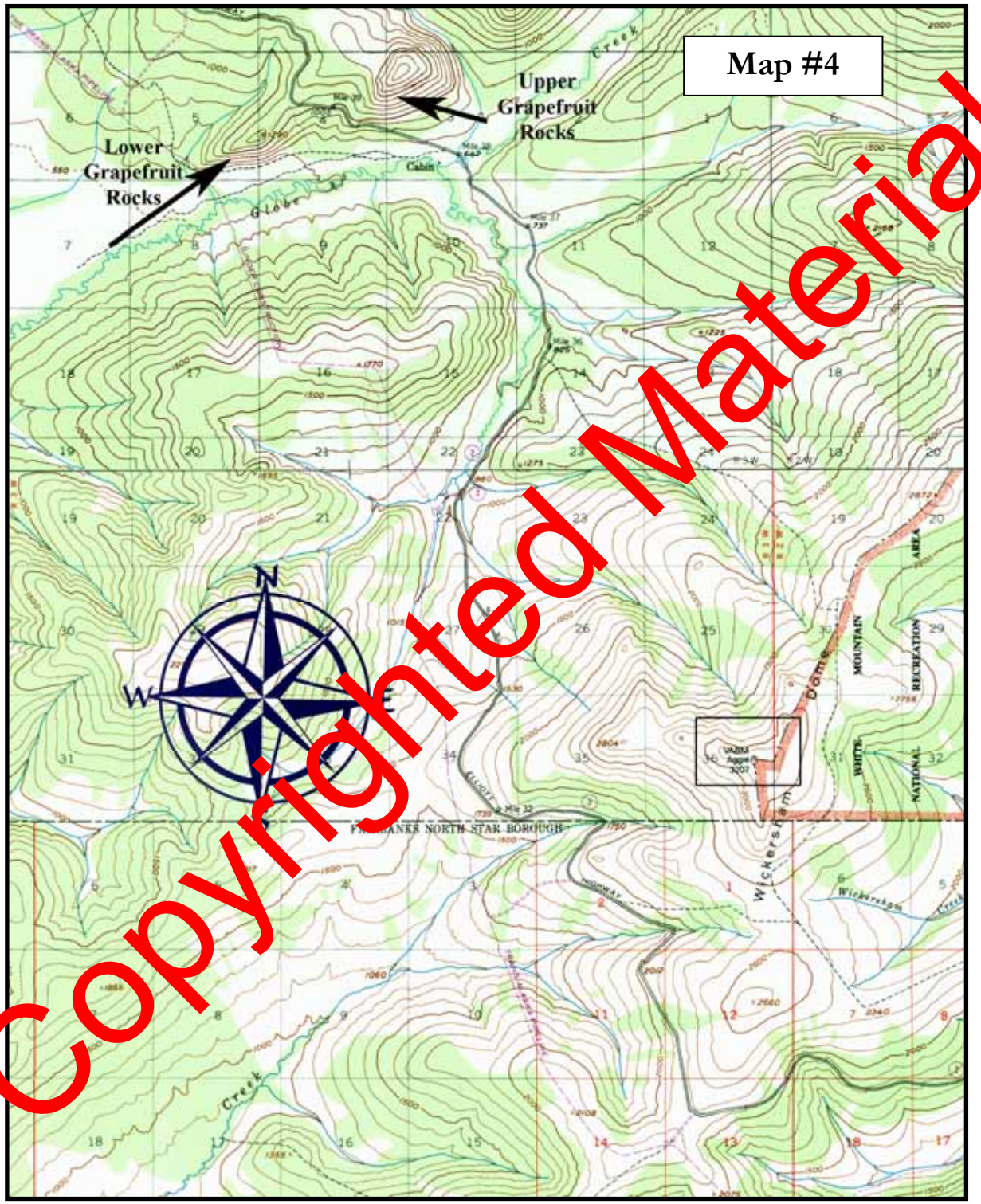
We recommend hiking here from about the second week of June through about the second week of July to find the wildflowers in this area at their peak. If you go too early you will find very few species in bloom and if you go too late, of course you'll find many seed pods, but few remaining flowers. We have found that the best time is on or near the Solstice.



Here is a 1:63,360 map which shows the Twelvemile Summit end of the Pinnell Mountain Trail and also the Steese Highway. As we stated above, we have hiked the Pinnell Mountain Trail from this end up to Table Mountain, a distance of approximately 5 miles. There are no super steep pitches along this section of the trail, it is not a very difficult climb/hike.

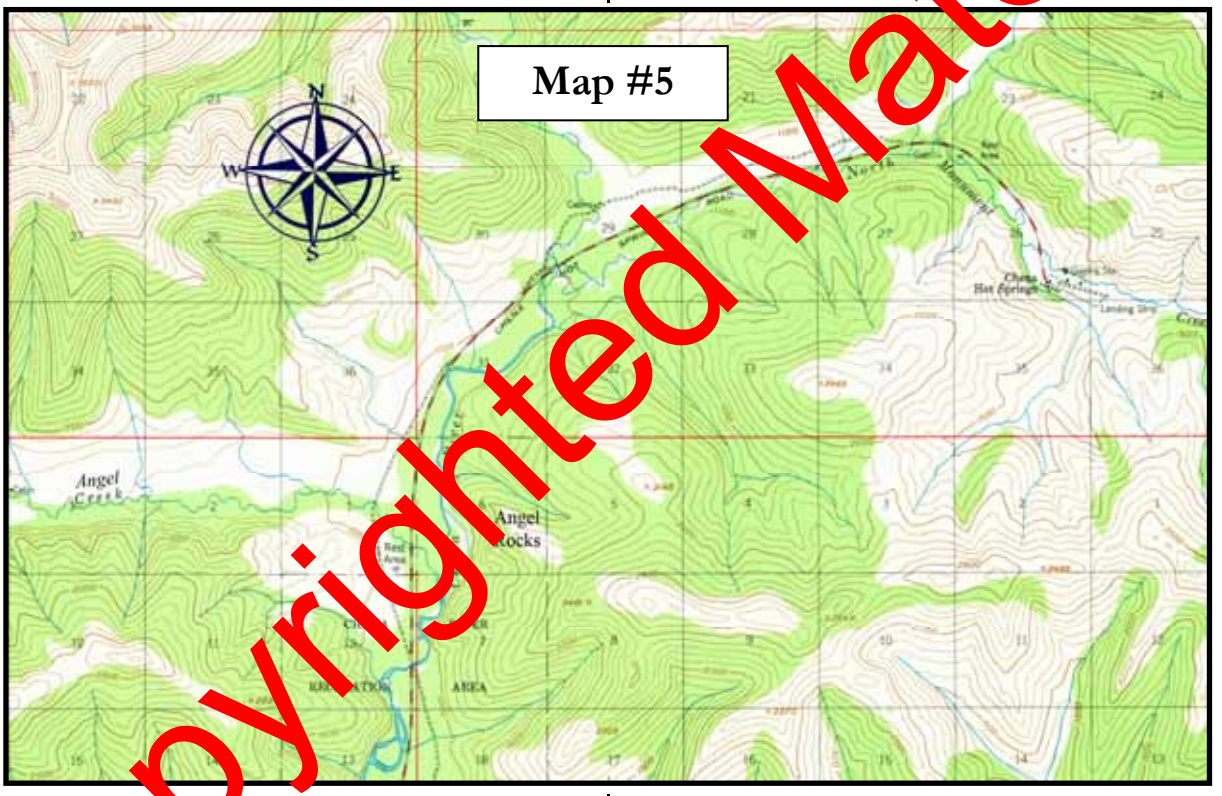
On the following page is a 1:63;360 map of the Eagle Summit end of the Pinnell Mountain Trail and the Steese Highway. As stated above, we have hiked/climbed the first five miles of this end of the trail. It's an amazing trip. There were so many wildflowers that we felt that we had died and gone to flower lover's paradise, it was incredible.



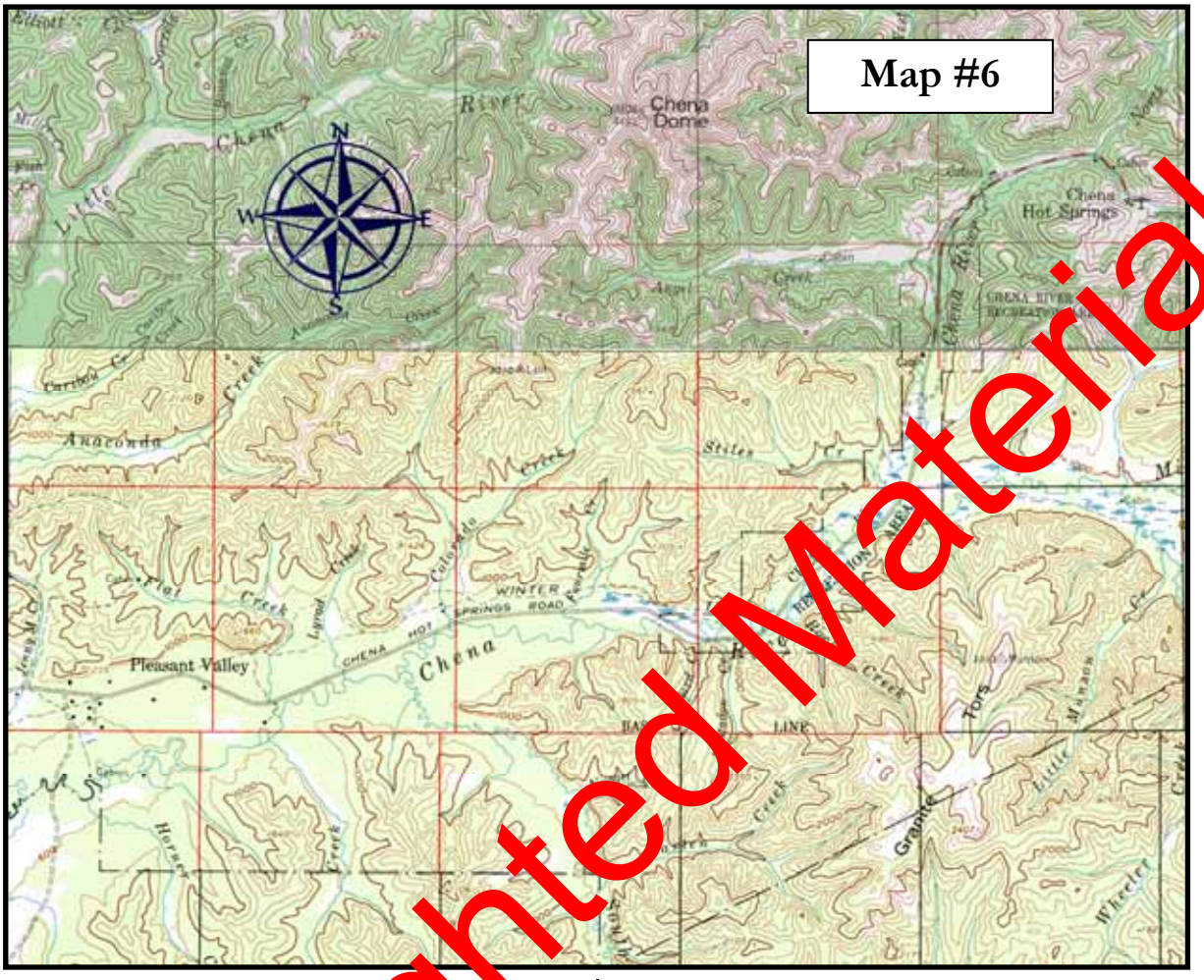


The map on the previous page shows the Grapefruit Rocks and Wickersham Dome areas at a scale of 1:63,360. Near the upper portion of the map, you will note the Upper Grapefruit Rocks and Lower Grapefruit Rocks areas and down near the lower right you can see the Wickersham Dome text, which is on the ridge, and the outlined area which says "VABM Aggie 3207", which is the highest point on Wickersham Dome.

The map on this page shows the Angel Rocks to Chena Hot Springs area at a scale of 1:63,360. We have hiked the eight-mile trail from Angel Rocks to Chena Hot Springs and some of the photos you'll see here were taken on that hike.



The 1:250,000 scale map on the following page includes a larger section of the Chena Hot Springs Road, from just a short distance west of Pleasant Valley, at about milepost 24, out to milepost 56.5 – the end of the road at Chena Hot Springs. This map is included primarily to show you that there is a very large area out in the Chena River Recreation Area in which you can hike and search for wildflowers. Caution is advised – there are bears and other wild animals.



That ends the maps which we wish to show you. You can download topographic maps free of charge from several websites, but the most reliable would be the USGS website. You can also purchase full sheet maps at several places in Fairbanks. If you're planning on doing much hiking you should be prepared with maps and a good compass. Also keep in mind that this is mountain country, the weather can and does change quickly. It can be sunny one moment and then you can be shivering in a cold rain a few minutes later.

WILDFLOWERS

1. Here is the first species. This, and also the image on the following page, are shots of *Achillea millefolium (Compositae).* It has several common names, which include common yarrow, soldiers woundwort, and bloodwort. In days of old it was used to reduce bleeding in wounds. It has several medicinal uses. These two photos were taken on June 20th near the village of Central, Alaska on the Steese Highway. Note the spider which is sitting on the upper right of the flower. You can see the leaves better in the photo on the following page.

Species #1 – *Achillea millefolium*

Species #2 – *Aconitum delphinifolium*

2. On this and the preceding two pages are images of *Aconitum delphinifolium (Ranunculaceae).* The common names are aconite, monkshood, wolf's bane, leopard's bane, mousebane, women's bane, devil's helmet, queen of poisons, and blue rocket. All parts of this plant are considered extremely poisonous, with symptoms occurring almost immediately and death within two to six hours in extreme cases. Two of the photos were taken on Table Top Mountain, which is shown on a 1:250,000 scale map on page 28. The images on this page show the albino form. This specimen was found as we were hiking the Angel Rocks Trail. We have never seen another specimen of the albino form of this species.

Species #3 – *Androsace chamaejasme* ssp. *lehmanniana*

3. Above are two photos of *Androsace chamaejasme* ssp. *lehmanniana (Primulaceae).* In the center is a cropped portion of a photo which shows only the tiny vegetative part of the plant. The common names of this plant are Lehmann's rock-jasmine, sweet-flower rockjasmine, and sweet-flowered fairy candelabra. As you can see, based upon the index finger in the left photo, this is a very small flower. Then, in the right photo you will note that the plant itself is barely larger than the flower. This is a plant which most people would not even notice, one has to keep his/her eyes open and be aware of one's surroundings to find this one. We have found this in May at Upper Grapefruit Rocks and on Eagle Summit in the first part of August. This genus is widely cultivated for its dense cushions covered in white or pink flowers. There are about 110 species. It is primarily an Arctic-alpine genus.

Species #4 – *Anemone narcissiflora*

4. The photo above and also the one to the right show *Anemone narcissiflora (Ranunculaceae)*, the narcissus anemone, narcissus-flowered anemone, or narcissus-flowered thimbleweed. We have found this species at all of the locations we visit. The shot above was taken at Grapefruit Rocks and the one to the right was taken at Twelvemile Summit. Sometimes one can see virtual fields of this flower in some locations. It is not a large flower, about two inches in diameter, but always very showy.

Species #5 – *Anemone parviflora*

5. The photo collage on the previous page shows *Anemone parviflora (Ranunculaceae)*, the northern anemone or small-flowered anemone. This flower can be found with either five or six petal-like sepals, although we have generally found flowers with only five sepals. This species is native to western North America, primarily being found in Canada and Alaska. We have found it to be not as abundant as the previous species (*Anemone narcissiflora*). We have found this flower at Grapefruit Rocks, Twelvemile Summit and Eagle Summit.

6. *Anemone richardsonii (Ranunculaceae)*, the yellow thimbleweed (shown below), is named after the Scottish naturalist, Sir John Richardson (1787–1865) who found it on Franklin's expedition to the Arctic. We have found this species only one time and that was on a hike in the Granite Tors area on the Chena Hot Springs Road (see Map #6, southeastern portion). This species prefers areas that are more wet than the previous two *Anemone* sp. which we have shown you, and therefore it can be found along streams, in willow thickets and so on.

7. *Anticlea elegans (Melanthiaceae)*, the mountain deathcamas, elegant camas, or alkali grass, has a very attractive and graceful appearance. Don't be fooled though, all parts of the plant are poisonous to humans and also livestock due to alkaloids more toxic than strychnine. Plants over-winter as a bulb that is very similar to the wild onion and early settlers learned of its toxicity the hard way.

The photo collage above shows the dried flower stalk early in the spring on the left, a nicely shaped plant on the right, and also a single flower inserted on the left. To the right is a photo which shows nearly an entire flower head. We have found this species only in the Grapefruit Rocks and Angel Rocks areas.

Species #8 – *Aquilegia brevistyla*

8. The only place we have ever found *Aquilegia brevistyla (Ranunculaceae)*, the smallflower columbine, is at Grapefruit Rocks. It is a tall perennial plant and can be found in a variety of habitats. It is rather a puzzle why we have only found it in a single location. Grapefruit Rocks is a strange area though and we have found several species of plants there which we have never, or rarely, seen at other locations. We have only a few photos of it, none of which show the entire plant or the leaves to advantage. The two photos above are the best we have. You should notice how incredibly hairy the flowers are, there are fibers or hairs in great abundance.

9. On the following page you will find several photos of *Arctostaphylos alpina (Ericaceae)*. This plant is known by several common names including mountain bearberry, black bearberry, bearberry, and more. It is a perennial with a woody stem and straggling branches. The leaves remain on the plant through the winter (Image 1), but drop off after flowering in the spring. In the autumn the foliage becomes beautifully red and is very photogenic, as can be seen in Image 2. It is also an attractive plant during the summer, although it is small enough so that probably the majority of people would not even notice it. We have found this plant in several locations including Wickersham Dome and along the Steese Highway.

Image 1

Image 2

Species #9 – *Arctostaphylos alpina*

Species #10 – *Arnica griscomii* ssp. *frigida*

10. On the previous page are three photos of *Arnica griscomii* **ssp.** *frigida (Asteraceae)*, commonly referred to as the snow arnica or frigid arnica, which is a perennial. Apparently, all of the *Arnica* species contain the toxin helenalin, which can be poisonous if large amounts of the plant are eaten. If enough of the plant material is ingested, the helenalin produces severe gastroenteritis, and internal bleeding of the digestive tract. In other words, don't eat it. In addition, simple contact with the plant can cause skin irritation in some people, so look, but do not pick it or eat it. We find this species virtually everywhere. It even grows along the shoulders of the roads and highways, including near caribou carcasses. You should not have any trouble finding it.

11. Below and also on the following page, you will find four photos of *Arnica lessingii (Asteraceae)*, the nodding arnica or Lessing's arnica. This species favors rocky and windswept high elevation areas. We have found it only at the higher elevations of Twelvemile Summit, Eagle Summit and Wickersham Dome. It is native to Alaska, Yukon Territory, British Columbia, Northwest Territories, and the Kamchatka Peninsula of the Pacific Coast of Russia. Remember the caution just above about all members of this genus containing helanalin.

12. On the following page you can find a photo of *Artemisia laskana (Asteraceae)*, the common names of which include Alaskan sagebrush, Alaskan wormwood, and Siberian wormwood. The best shot of the flower has also been enlarged as much as possible and included as an inset. It may surprise you to learn that this plant is an important ingredient in some French food preparations as a flavoring. The plant can also be used as a cough medicine. It also lowers fever and supposedly cures headaches. There are numerous uses of wormwood for women, which rather makes sense as the plant is named for Artemis, the goddess which represents the various energies of women. We have found this species only at Angel Rocks.

Species #12 – *Artemisia alaskana*

Species #13 – *Artemisia norvegica* ssp. *saxatilis*

13. On the previous page are the photos of *Artemisia norvegica* **ssp.** *saxatilis (Asteraceae).* It is known by the common names alpine sagewort, boreal sagewort, mountain sagewort, Norwegian mugwort, arctic wormwood, and spruce wormwood. It is a perennial shrub found in cold locations in Eurasia (Scotland, Scandinavia, the Ural Mountains of Russia) and high altitudes and high latitudes in North America. We have found it only on Wickersham Dome.

Species #14 – *Astragalus alpinus* var. *alpinus*

14. The photos above and also to the right show *Astragalus alpinus* var. *alpinus (Fabaceae).* The common name is alpine milkvetch. It has a circumpolar distribution, occurring throughout the upper latitudes of the Northern Hemisphere. This species often has white flowers, or white flower bases and blue tips, so in some books it is placed with blue-flowered plants and in other books it is placed with white-flowered plants. We have photographed this species only one time and that was on Eagle Summit in early summer. This species may be divided into two varieties, var. *alpinus* occurring in the Arctic and var. *brunetianus* occurring in northeastern North America at lower latitudes. It has a very attractive flower.

Species #15 – *Astragalus umbellatus*

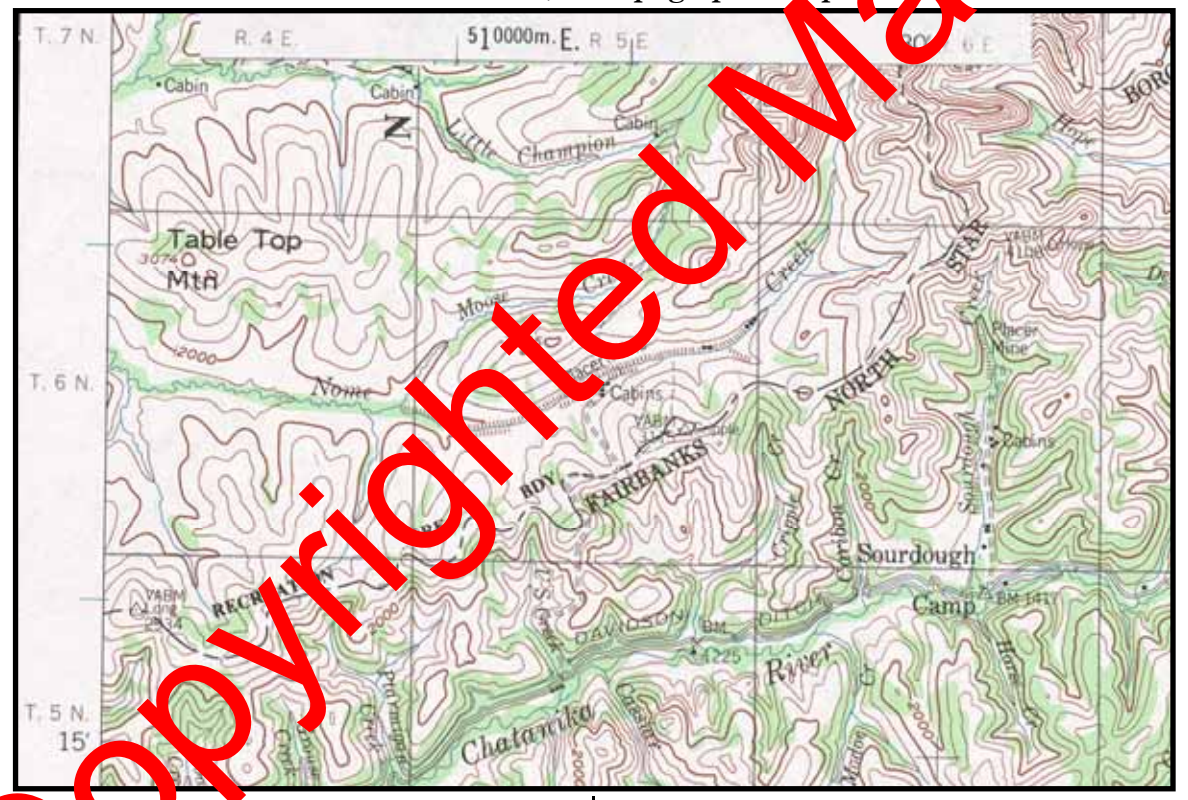
15. The photo on the previous page and also the two on this page show you *Astragalus umbellatus (Fabaceae).* Like the previous species, we have photographed this only at Eagle Summit. Common names include tundra milkvetch and hairy Arctic milkvetch. Many members of this genus contain toxic glycosides, so be careful. You should always know precisely what you are doing when you taste plants, either cooked or uncooked. The root of this species is supposedly used by native people, but we could find no information as to exactly how it is used.

Species #15 – *Astragalus umbellatus*

Species #16 – *Bistorta plumosa*

16. The four-photo collage on the previous page shows *Bistorta plumosa*, aka *Polygonum plumosum*, aka *Polygonum bistorta* **var.** *plumosum*, aka *Bistorta officinalis (Polygonaceae)* the meadow bistort, bistort, pink plumes, snakeroot, and snakeweed. This is a stunning flower when it is at its peak and can sometimes be found in groups of a hundred or more plants in an area of a few square meters. We have found it virtually everywhere that we frequent. The most dense groups of it that we've ever found were while climbing Table Top Mountain, in the White Mountains National Recreation Area. This mountain is not shown on any of the maps in the front of the book, but you can find it on the small map inserted just below. It should not be mistaken for Table Mountain, which is shown on Map #2 in the front section of this book. Table Top Mountain is on US Creek Road, which can be accessed from mile 57.4 of the Steese Highway and then turning left at a T-intersection after about seven miles. After driving about another eight miles or so on this gravel road, you will find the trailhead on the right side of the road. This is a beautiful drive with several scenic pullouts along the way.

From the 1955 Circle 1:250,000 topographic map of 19



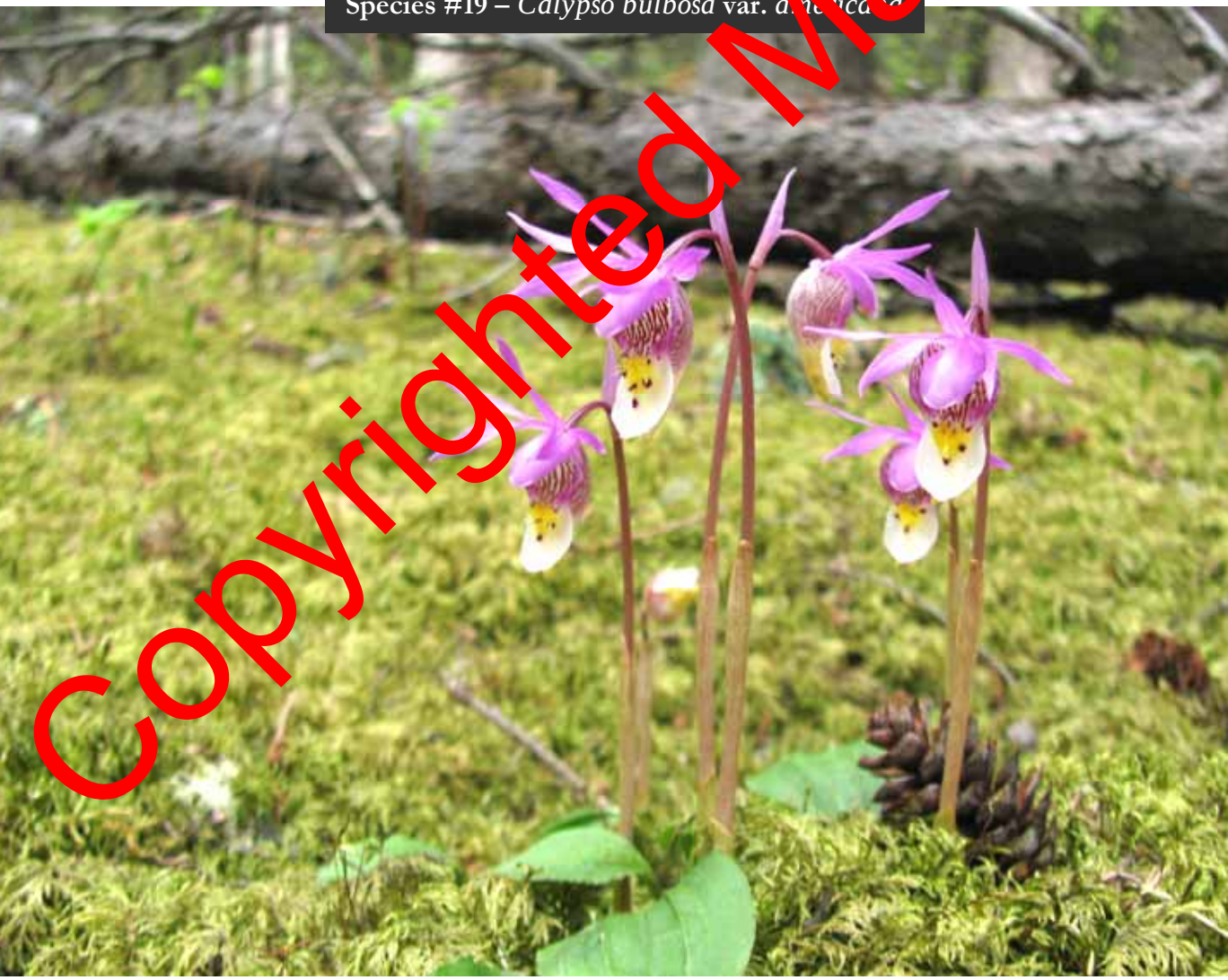
17. On the following page is our best photo of *Boschniakia rossica (Orobanchaceae)*, commonly known as northern groundcone, groundcone, and broomrape. It is parasitic, growing only on the roots of mountain alder (*Alnus crispa*). The flowers are tiny and reddish. The plant itself looks like an erect tall and soft pine cone. It can even be seen standing in the forest in the winter and early spring. It is not especially attractive, but it cannot be denied that when you see it, you'll be curious and wander over to take a closer look at it. The only place we have seen this species is along the trail while climbing in the Angel Rocks area, specifically, down low along the Chena River, as that is where the mountain alder grows.

Species #18 – *Bupleurum americanum*

18. The four-photo collage on this page shows various stages in the development of *Bupleurum americanum (Apiaceae).* The common names of this plant are American thorow wax and American thorough-wax. It is a plant which can be found in both the lowlands and also in alpine regions. It is the only native US species of this genus of the celery/carrot/ parsley family. In the photo collage, the two photos on the left were taken on June 13th and the two photos on the right were shot on July 5th. All of the photos were taken at Angel Rocks, which is the only location where we have seen it. It is a strange looking plant, not really attractive, yet, not truly unattractive.

19. The next species we will cover is such a beautiful one that we're going to include several photos, it is *Calypso bulbosa* **var.** *americana (Orchidaceae).* Some common names include calypso orchid, fairy slipper, and Venus' slipper. We have found it both in Fairbanks itself, on the University of Alaska – Fairbanks campus and we have also found it out on the Chena Hot Springs Road in the vicinity of Granite Tors (Map #6). Several authors indicate that this species is at least semi-parasitic and needs certain species of fung to be able to survive. It blooms in the early spring, along with the violets and other very early blooming flowers.

Species #19 – *Calypso bulbosa* **var.** *americana*



Species #19 – *Calypso bulbosa* var. *americana*

Species #19 – *Calypso bulbosa* var. *americana*

Species #19 – *Calypso bulbosa* var. *ameri ana*

Species #19 – *Calypso bulbosa* var. *americana*

Species #[illegible] - *Campanula lasiocarpa*

20. The beautiful flowers on the previous page belong to *Campanula lasiocarpa (Campanulaceae).* Some of the common names for this species include mountain harebell, Alaska harebell, bellflower, and Alaska bellflower. There are some references which say that the stems of this species are edible, but we could not find enough information to be able to confirm this. I know that we have never eaten or even tasted it. We have found this species virtually everywhere that we climb or hike in the Interior Alaska mountains. We have found it in bloom in June, July, and August. By the way, in the lower right photo in the collage, the pink flower is *Linnaea borealis,* which will be shown in more detail when we arrive at the letter "L".

21. The tiny little flower below and also shown in the collage on the following page is *Cardamine purpurea,* in the *Brassicaceae* family. It is known by the common names, bittercress, purple bittercress, and purplecress. We personally have found this species only in the Eagle Summit area, but it has been reported from other high elevation areas along the Steese Highway. There are also references to a white flowered form, but we have not found that yet. As you can easily see in the upper left photo in the collage, this is a tiny flowered plant and with its dark color it can easily be overlooked if you are not on your toes and keeping your eyes open for small plants with small flowers. We wish you the best of luck in finding it.

Species #21 – *Cardamine purpurea*

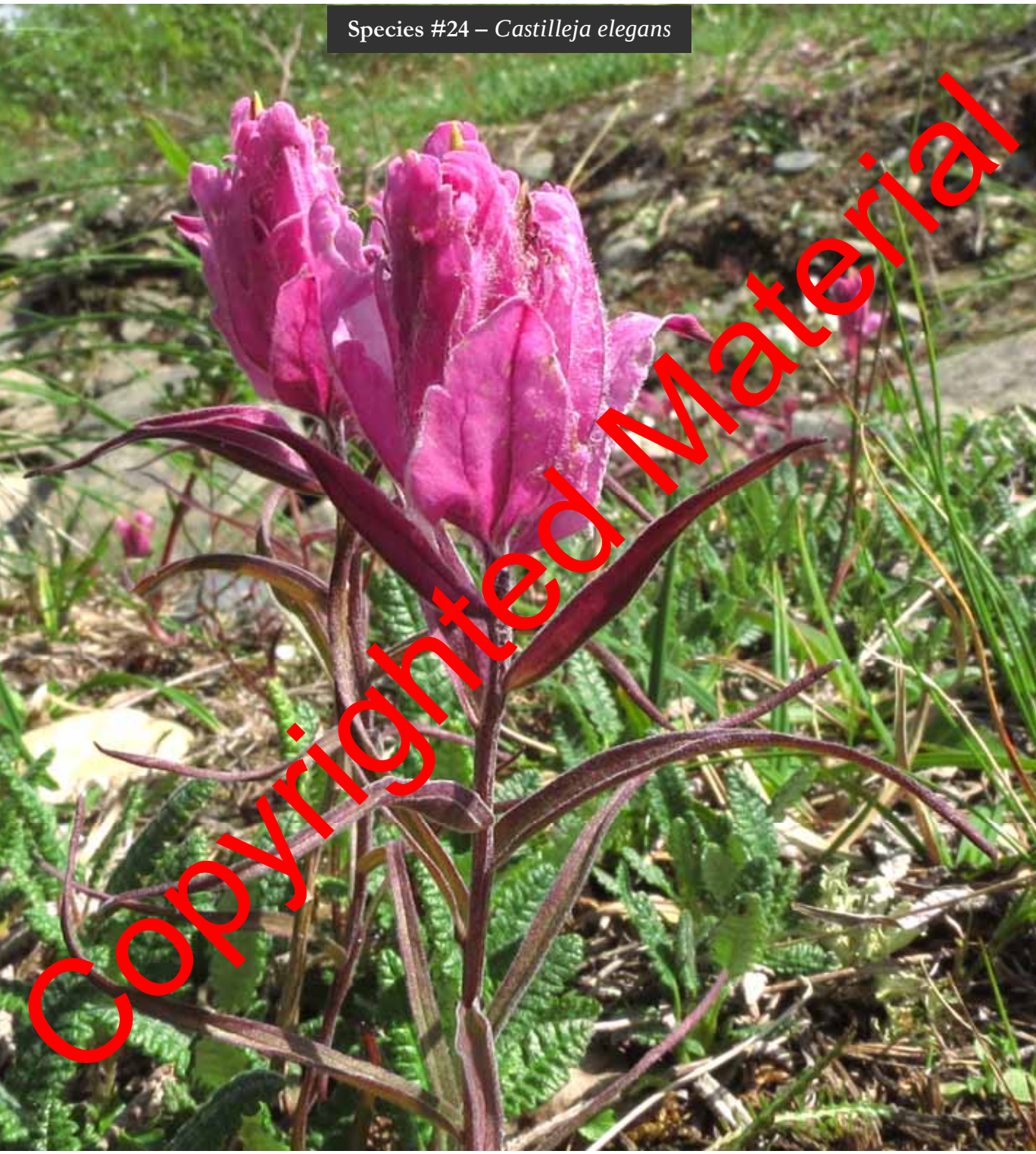
Species #22 – *Cassiope tetragona*

22. The three-photo collage on the previous page shows *Cassiope tetragona (Ericaceae)*. Common names include Arctic bell-heather, white Arctic mountain heather, four-angled cassiope, and Arctic white heather. It is a plant native to the high Arctic and is found widely at higher elevations. We have found it along the Pinnell Mountain Trail at both Twelvemile Summit and Eagle Summit. It is a small shrub type evergreen which we have found in bloom in June. From the photos you can easily see why one of the common names is four-angled cassiope. It is a flower which is so tiny that it is difficult to get good photos of.

Species #23 – *Castilleja caudata*

Species #23 – *Castilleja caudata*

23. On the previous page and also on this page you can see the beauty of *Castilleja caudata (Orobanchaceae)*. The common name of this species include Port Clarence Indian paintbrush and pale Indian paintbrush. The plant appears to be a facultative parasite, which means that it is capable of surviving without draining nutrients from other plants, but it grows more healthy if it can draw sustenance from other plants. It is often seen along roads, as the specimen shown her was. We captured these photos a few miles east of Central, Alaska, along the Steese Highway. Oh, by the way, the pink flowers on the extreme left in the photo on the previous page are *Epilobium angustifolium* aka *Chamerion angustifolium (Onagraceae)* commonly known as fireweed, and the pink flowers on the right in the same photo belong to *Hedysarum alpinum, (Fabaceae)*, the Eskimo potato or alpine sweetvetch. We will speak of the fireweed soon, but we are not going to include the Eskimo potato in this work due to the fact that we have somehow, never taken photos of it, which is very strange for us. Maybe we have been considering it too common to bother with? I don't know.


Species #24 – *Castilleja elegans*
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24. On the previous page and also on this page you can see the amazing beauty of *Castilleja elegans (Orobanchaceae).* Could this have a better common name than the elegant Indian paintbrush? It is also known as the red paintbrush and the elegant paintbrush. This species is at least partially parasitic upon the roots of other plants, so if you find it and decide that you want to take it home with you, be forewarned, it will most likely die. Note that the reddish color is not due to the flower but the showy leafy bracts surrounding the flowers. These bracts resemble a brush dipped in paint, giving it its common names. To date we have found this species only on the Wickersham Dome Trail.

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25. There is one more paintbrush which we are going to include here, this is *Castilleja hyperborea (Orobanchaceae).* Note, however, that some references show this species in the *Scrophulariaceae* family. The common names are northern Indian paintbrush and northern paintbrush. We have found this species in the vicinity of Twelvemile Summit and also on the high ridges above Angel Rocks. The flowers of Indian paintbrush are edible, and were consumed in moderation by various Native American tribes as a condiment with other fresh greens. These plants, however, have a

tendency to absorb and concentrate selenium in their tissues from the soils in which they grow, and can be potentially very toxic if the roots or green parts of the plant are consumed in large quantity. Indian paintbrush has similar health benefits to consuming garlic if only the flowers are eaten in small amounts.

Species #25 – *Castilleja hyperborea*

This is the final *Castilleja* sp. which there is to show you. As we are sure you have noticed, each of them is very beautiful. By the way, it should be noted that some references show all of the paintbrush species to be in the *Scrophulariaceae* family and not the *Orobanchaceae* family as we have shown here.

Species #26 – *Chamerion angustifolium*

26. On the previous page are two photos of *Chamerion angustifolium* aka *Epilobium angustifolium (Onagraceae).* This is commonly known as fireweed and also great willowherb. It is very common in Alaska. It has only recently been placed in the genus *Chamerion* rather than *Epilobium*, based on several morphological distinctions: spiral, rather than opposite or whorled leaf arrangement; absence, rather than presence of a hypanthium; subequal stamens, rather than stamens in two unequal whorls; and zygomorphic, rather than actinomorphic stamens and stigma. The lower photo on the previous page shows an albino form, which we have found only on the Table Top Mountain (map – page 28) Trail.

27. Below and also on the following page are two photos of *Chamerion latifolium (Onagraceae).* The common names of this plant are dwarf fireweed and river beauty willowherb. The same note applies to this species as above about being only recently moved from the genus *Epilobium* to the genus *Chamerion.* We have found this species in several locations including Eagle Summit and Twelvemile Summit, but both photos shown here were taken in the vicinity of Table Top Mountain.

Species #27 – *Chamerion latifolium*

Species #27 – *Chamerion latifolium*

Species #28 – *Cornus canadensis*

28. The lower photo on the preceding page and also the one just above show *Cornus canadensis (Cornaceae)*, commonly known as bunchberry, Canadian bunchberry, creeping dogwood, and Canadian dogwood. It is a widespread plant and can be found from the high arctic down to the latitude of New Mexico. It can grow into a lush carpet like ground cover. In late summer, dense clusters of small, red berries replace the flowers, as can be seen in the photo on the preceding page. Some people enjoy these juicy fruits, with their crunchy little seeds, but others consider them mealy and tasteless. Bunchberries can be eaten as a trail nibble or added to puddings, preserves and sauces according to some reference sources. Can you identify the blue flower which appears with the bunchberry in the above photo (see page 36)?

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29. *Corydalis pauciflora (Papaveraceae)* (although some sources position it in the *Fumariaceae* family), the few-flowered corydalis or fewflower fumewort is shown in the two-photo collage on the following page. This distinctive species is the only blue-flowered member of the genus. It is essentially an Asiatic species whose distribution extends across the Bering Strait into North America. Both of these photos were taken very close to Eagle Summit.

Species #29 – *Corydalis pauciflora*

30. The next species is another orchid. We love it when we find orchids. This one is *Cypripedium guttatum (Orchidaceae).* Surprisingly, we were able to find only one common name for this species, the spotted lady's slipper orchid. We have found it only in the Grapefruit Rocks area and we were so amazed to find it that we took probably about 100 photos of it, give or take a few, of course. The photo just below shows two flowers and on the left you can also see one of last year's seed pods.

The photo collage on the next page shows a group of several of these orchid plants in the upper portion and a single plant in the lower portion. There is one more photo collage of this species on the following page. That photo shows only close-up shots of flowers. In both upper and lower position are photos which include two flowers, but in the lower photo the flower which the photo concentrates on, is very nicely opened and shows the flower parts beautifully.

Species #30 – *Cypripedium guttatum*

Species #30 – *Cypripedium guttatum*

Species #31 – *Cypripedium passerinum*

31. The photos on the previous page and also just above, show *Cypripedium passerinum* (*Orchidaceae*). It is known by the common names northern lady's slipper, sparrow's egg lady's-slipper, spotted lady's slipper, and Franklin's lady's-slipper. This and the previously shown *Cypripedium guttatum* are the two species in this genus which grow farther north than any other species of the genus. We have found this species in two locations. The first place we found it was near Central, Alaska, alongside the Steese Highway and then, a few weeks later, we found it near Grapefruit Rocks on the same day that we found the *Cypripedium guttatum*. We get very excited when we find orchids in the wild, so maybe you cannot even imagine how excited we were to find two orchid species, and two Lady's Slipper orchids at that, in the same month. Please note the seed pods in the photo just above.

Species #32 – *Dasiphora fruticosa*

32. On the previous page you saw the collage which shows *Dasiphora fruticosa (Rosaceae)*, aka *Potentilla fruticosa* aka *Pentaphylloides fruticosa*. It is a species of hardy deciduous flowering shrub native to the cool temperate and subarctic regions of the northern hemisphere. It can often be found growing at high altitudes in the mountains. Common names include shrubby cinquefoil, golden hardhack, bush cinquefoil, shrubby five-finger, and tundra rose. We have found this species along the Steese Highway northeast of Central, Alaska and also at Grapefruit Rocks. In the lower photo please notice the unopened bud.

Species #34 – *Delphinium glaucum*

33. On the previous page is a collage of *Delphinium brachycentrum (Ranunculaceae).* The common names of this species are northern larkspur, dwarf longspur, and Arctic longspur. All parts of the plant are toxic, so please do not experiment with eating it or making tea with it. We have found this species only along the Pinnell Mountain Trail, closest to the Eagle Summit end of it.

34. The two-photo collage just above shows *Delphinium glaucum (Ranunculaceae).* Common names of this species include: the tall larkspur, mountain larkspur, tower larkspur, Sierra larkspur, giant larkspur and duncecap. We have found this species only close to Lower Grapefruit Rock. What's the difference between the above two species? The *D. brachycentrum* shows leaves all the way up to just below the flowers and the *D. glaucum* only has the leaves down at the base of the plant. Both of them have very beautiful blue flowers. Of course, this species is also toxic, as are all members of the genus.

35. On the following page is a collage which shows *Diapensia lapponica* **ssp.** *obovata (Diapensiaceae).* This is a small cushion-forming evergreen perennial shrub, up to around 15 centimeters (6 in.) in height. It can trap heat in the dome, which helps it to survive in the arctic. It has oval blunt leathery toothless leaves, up to 1 cm. (0.4 in.) in length, which are arranged in dense rosettes. It bears solitary white flowers on stems up to 3 cm. (1.2 in.) in height.

Species #35 – *Diapensia lapponica* ssp. *obovata*

Species #36 – *Dodecatheon frigidum*

36. The four-photo collage on the previous page and the two-photo collage on this page both show *Dodecatheon frigidum (Primulaceae)*, the western Arctic shooting star, northern shooting star, frigid shooting star, and shooting star. It is such a beautiful species that we have well over one-hundred photos of it. It is impossible for us to see it without stopping to take photos of it. We find it between Twelvemile Summit and Eagle Summit, but it surely grows at some of the other locations that we favor too. It seems to grow in the more moist areas, often, just below a snowfield which is in the process of melting.

37. On the following page is a collage of *Dryas integrifolia (Rosaceae)*. Some common names for this cute little plant are entireleaf mountain-avens, white mountain-avens, northern white mountain-avens, and mountain-avens. This is a common Arctic species and possibly the most common flowering plant on some of the western Arctic islands. Please note in the photos that the leaves are entire. This will prove to be the primary, and easiest to identify, difference between this species and the one which follows it, *D. octopetala*.

Species #38 – *Dryas octopetala*

38. On this page and also on the previous page are the photos of *Dryas octopetala (Rosaceae)*. Its common names include mountain-avens, eightpetal mountain-avens, white dryas, and white dryad. It is an Arctic–alpine small prostrate evergreen shrub which can form large colonies. We have seen very large areas covered with it like a carpet. As you can see in the upper photo (previous page), when it goes to seed, later in the season, it is very interesting to see. As stated above, the main difference between these two *Dryas* **spp.** is the entire leaves of the previous species and the wavy indentations of the leaves of this species.

39. On the following page is a single photo of *Empetrum nigrum (Ericaceae)*. The common names of this plant include crowberry, black crowberry, curlew berry, and mossberry. It grows virtually around the globe at higher altitudes in northern latitudes. We have even seen it in mountainous areas in Japan. We see this species in all of our favorite hiking areas, including Eagle Summit and Twelvemile Summit, but the photo included here was taken on Table Top Mountain (map – page 28).

40. On the next page you can see a two-photo collage of *Erigeron purpuratus (Asteraceae / Compositae)*. It is known by the common names, purple fleabane and Arctic fleabane and is generally found primarily on alpine gravelly slopes or alpine gravel bars along rivers and streams. We have seen this species only at Upper Grapefruit Rocks at the end of May. This plant has a very beautiful flower that we really enjoy finding, looking at, and photographing. We have found a similar species while hiking in the Northern Alps Mountain Range in Japan, but the flower was larger and also much more purplish/pinkish.

Species #40 – *Erigeron purpuratus*

41. *Eriophorum angustifolium (Cyperaceae)* is commonly known as common cottongrass, common cottonsedge, tall cottongrass, or bog cotton. It grows in acidic soils in open wetlands. This is one of the few species of *Eriophorum* which have multiple flower heads on a single stem. We found this only one time and only near Central, Alaska, within sight of the Steese Highway. We had never seen a cottongrass with multiple flower heads on a single stem, so we braked to a stop, reversed and jumped out of the rig to capture a few photos of it.

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42. On the next page are three photos of *Eriophorum scheuchzeri (Cyperaceae)*. Some common names of this species include Scheuchzer's cottongrass and white cottongrass. There are several species of cottongrass in Interior Alaska, so one has to be careful when attempting to identify them specifically. We are about 90% sure that we have identified this species correctly but if you disagree, we cannot argue with you. We found this "forest" of cottongrass along the Elliott Highway on the way to Grapefruit Rocks. As you can probably deduce, it was found in an area that was burned over by a forest fire in the previous few years.

Species #41 – *Eriophorum angustifolium*

Species #43 – *Eritrichium nanum*

43. On the previous page is an amazing collage of *Eritrichium nanum (Boraginaceae).* This is commonly known as the arctic alpine forget-me-not, arctic forget-me-not, mountain forget-me-not, or king-of-the-Alps. It is a circumpolar alpine cushion plant which occurs in the North American Rocky Mountains as well as the European Alps. It grows at elevations of up to 10,000 feet in an environment of acid rocks, snow gullies and receding glaciers. In the lower left photo, you can see an entire plant. That photo was taken on June 19 at Eagle Summit. We have found this species at several places between Twelvemile Summit and Eagle Summit, as well as along the Pinnell Mountain Trail. This is such a tiny plant and flower, as can be seen in the lower right photo where the flower is compared to a finger, that it's difficult to spot. That means, when one does finally find it, its amazing beauty and fragility make one want to stay there and keep taking photos and protect it. Good luck in your quest for this plant.

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44. *Eurybia sibirica, (Asteraceae / Compositae)* commonly known as the Siberian aster or arctic aster, is an herbaceous perennial native to northwestern North America and northern Eurasia. It is found largely in open areas of subarctic boreal forests. To date we have found this species only at Upper Grapefruit Rocks.

Species #44 – *Eurybia sibirica*

45. This cute little flower just above is *Eutrema edwardsii (Brassicaceae).* The common name is Edwards' mock wallflower. This photo shows the entire small plant, but it was taken early in the season, and apparently, it does get quite a bit larger. We, however, found this specimen at Eagle Summit, a high elevation alpine environment, so it is possible that it does not get any larger at this location. It also occurs as a multi-stemmed plant.

46. On the following page you can find three photos of *Gagea serotina aka Lloydia serotina (Liliaceae).* The only American common name is common alplily. We have found this species at Upper Grapefruit Rocks and Eagle Summit. It thrives in windy areas.

Species #46 – *Gagea / Lloydia serotina*

47. The two photos just above show *Gentiana algida (Gentianaceae)*, the whitish gentian or Arctic gentian. Both of these photos were taken as hiked along the Savage River Loop Trail in Denali National Park. We have also found this species near Porcupine Dome on the Pinnell Mountain Trail on August 6th, though it was finishing at that time. It is widely distributed throughout Interior Alaska and Canada's Yukon Territory.

48. On the following page and also on the page following that are a total of five photos of *Gentiana glauca (Gentianaceae)*. It goes by the common names pale gentian, glaucous gentian, inky gentian, and smooth alpine gentian. We have found this species at Twelvemile Summit, Eagle Summit and also along the Pinnell Mountain Trail. The relatively rare yellow color variation which gave rise to the name of the species, glauca meaning pale, is shown in the left portion of the collage on the next page. In the background of that portion of the collage you can see a flower of the inky variation. On the right on the next page is a specimen which is somewhat in-between the pale variation and the inky variation. On the page following that (page 74) are three photos of the darker variation, the inky color. The uppermost photo on page 74 gives you an idea of how small this species is. The lower photo on that page shows a specimen which is just in bud. The center photo on page 74 attempts to look down into a blossom.

Species #48 – *Gentiana glauca*

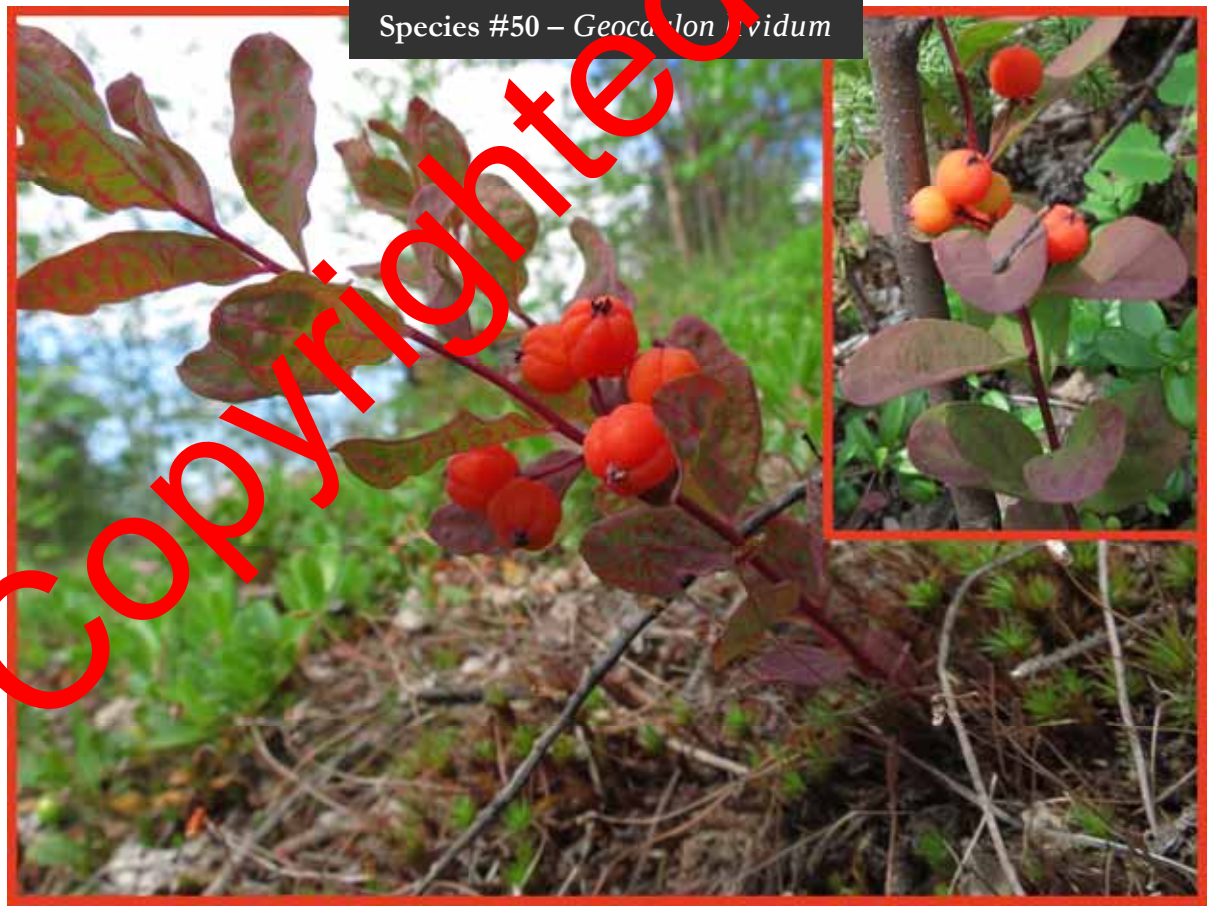
Species #48 – *Gentiana glauca*

Species #49 – *Gentianella propinqua*

49. On the previous page is a four-photo collage of *Gentianella propinqua (Gentianaceae)*. The common names of this species include fourpart dwarf gentian, four-parted gentian, and four-petaled gentian. This plant is an annual and it reportedly can occur in virtually any shade of purple, from nearly white all the way to the very darkest purple. We have found this species east of Central, Alaska on the Steese Highway and along the Taylor Highway near Mt. Fairplay. All of them were pretty much the same shade of purple as shown in the photos. It is not a very large plant and can easily be overlooked.

50. The two-photo collage below shows *Geocaulon lividum (Santalaceae)*. This species is known by the common names pumpkin berry, northern comandra, red-fruited bastard toadflax, dogberry, timberberry, and false toadflax. From the photos, you can deduce why it's called pumpkin berry. It is a parasitic plant, its rootlets attaching to the roots of a wide variety of host plants including spruce, pine, birch, willow, alder, twinflower, bearberry and asters. The inconspicuous flowers, blueberry-like leaves, and relatively short stature make it easily overlooked early in the season, but the bright orange-red fruits are much more eye-catching in the summer. We have no photos of the flowers of this species, only the fruits. We have seen this species only at Angel Rocks and only as we approached the higher elevations.

Species #50 – *Geocaulon lividum*



51. The photo immediately above shows the bright yellow flower and the plant of *Geum rossii (Rosaceae)*. Common names of this species are Ross' avens and alpine avens. It grows at high-latitude and high-elevation habitats. We have found it at several locations in the Eagle Summit area.

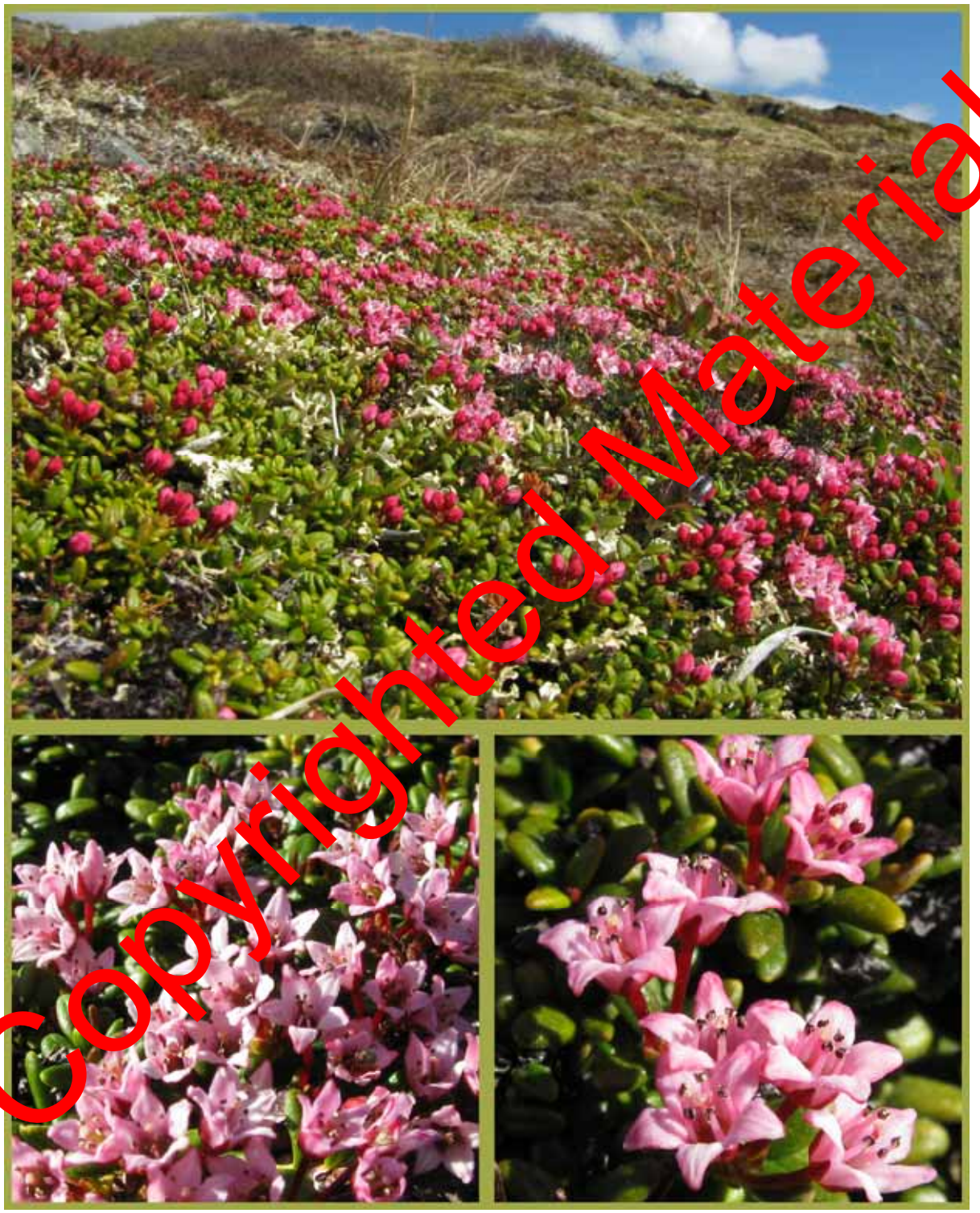
52. On the following page is a three-photo collage of *Goodyera repens (Orchidaceae)*. It is known as creeping lady's-tresses, dwarf rattlesnake plantain, and lesser rattlesnake plantain. We found this species on the lower portion of the Angel Rocks Trail, down near the Chena River. It likes moist areas, so you should search for it near streams. It is considered a relatively rare species. Internet references say that this species occurs only in forests that are at least 95 years old. Like other orchids, *Goodyera repens* lives in symbiosis with a mycorrhiza, a rhizome-dwelling fungus. The mycorrhiza helps the orchid absorb and assimilate nutrients. This orchid is pollinated by bumblebees, allowing for its sexual reproduction. It can also reproduce vegetatively. As you can deduce from the photos, this species could easily be overlooked.

Species #52 – *Goodyera repens*

53. On the next page you see *Iris setosa (Iridaceae)*, a very beautiful early season flower. The common names of this species are bristle-pointed iris, beachhead iris, beach-head iris, wild flag iris, Alaska iris, blue flag iris, and more. As you can see in the photos, it's possible to find this species with both wide and narrow flower petals. It grows both singly and also in clusters. In wet marshlands it can be a dominant species and fill the marsh with the most beautiful blue flowers in the early part of the season. We have found it in many damp/wet places, but not on the mountain tops. If you go out and drive around in the spring you should find it.

Species #53 – *Iris setosa*

Species #54 – *Kalmia procumbens*



54. On the previous page are three photos of *Kalmia procumbens* aka *Loiseleuria procumbens (Ericaceae)*. It is commonly known as alpine azalea, trailing azalea, and mountain azalea. As you can see here, it is a tiny plant and it has, of course, a tiny flower. In fact, it is considered a dwarf shrub of high mountain regions. For that reason, it should not be surprising to you that we have found this species only at our higher elevation haunts, namely from Twelvemile Summit to Eagle Summit and along the Pinnell Mountain Trail. It prefers rocky exposed habitat. We have found it in various shades of pink, ranging from very light to very dark.

55. Below and also on the following page you'll find three shots of *Lagotis minor (Plantaginaceae / Scrophulariaceae)*. This species is known as little weaselsnout. It can be found on damp tundra and alpine meadows as well as rocky slopes. It has only recently been moved from the family *Scrophulariaceae* to the family *Plantaginaceae* based on DNA sequence studies, so if you search for it on the internet, do not be surprised to see it shown under both family names. We have found this species only near Eagle Summit and on the Pinnell Mountain Trail near the Eagle Summit end. This is a species which we really love to find.

Species #55 – *Lagotis minor*

Species #55 – *Lagotis minor*

Species #56 – *Linnaea borealis*

56. On the previous page is a two-photo collage of *Linnaea borealis (Caprifoliaceae).* This is the famous twinflower (sometimes written as twin flower), American twinflower, or northern twinflower. In case you do not know it, this plant was a favorite of Carl Linnaeus, founder of the modern system of binomial nomenclature, for whom the genus was named. This species has a circumpolar distribution and occurs in moist subarctic, boreal, or cool temperate forests. In Interior Alaska we have found this species in the vicinity of Chena Hot Springs, Angel Rocks, Wickersham Dome, and in our own yard. Hopefully, you can deduce why it's called twinflower. It can form dense carpets in the forest.

57. Below is a collage which shows *Lomatogonium rotatum (Gentianaceae).* This is known by the common names, marsh felwort or star gentian. It has a circumboreal and alpine distribution. The flowers can have either four or five petals. From the index finger in the photo, you can see that it is a small flower on a small plant. We found this species on only one outing and we found it at both Pelvamine Summit and also Eagle Summit.

Species #58 – *Lupinus arcticus* **ssp.** *arcticus*

58. On the previous page is a fine two-photo collage of *Lupinus arcticus* **ssp.** *arcticus (Fabaceae).* This is known as the Arctic lupine. It occurs in various shades of blue or purple which range from virtually white, all the way through pale and even dark blue. There is one place quite near Eagle Summit where there are probably thousands of these plants and when they are all blooming, it is quite impressive. You can get a small idea of how impressive it is in the lower photo on the previous page. Now try to imagine a 360 view of that.

59. On the lower portion of this page and also on the following page are a total of three shots of *Minuartia macrocarpa (Caryophyllaceae).* This is known by the common names long-pod stitchwort and large-fruited sandwort. As you can see from the photos, this species forms relatively dense clumps composed of a single plant and these clumps are scattered about on the hillsides. The photo just below was taken at Angel Rocks and the two shots on the next page were taken at Twelvemile Summit (right photo) and Eagle Summit (left photo).

Species #59 – *Minuartia macrocarpa*

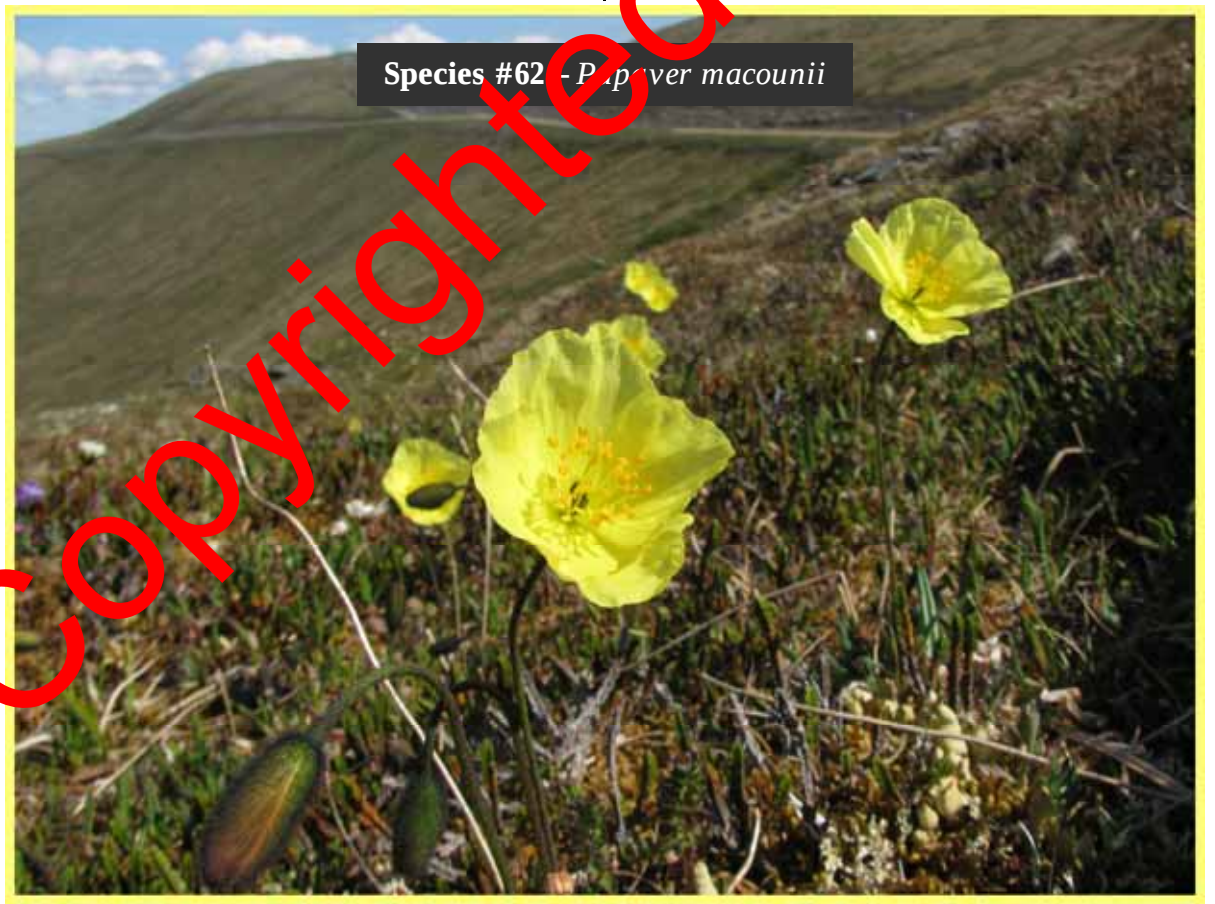
Species #60 – *Moneses uniflora*

6. The cute little plant and flower shown to the left is *Moneses uniflora (Ericaceae, formerly Pyrolaceae).* The common names of it are one-flowered wintergreen, shy maiden, waxflower, and single delight. As you can see, each plant has only a single flower, which is quite attractive. To date we have spotted this species only in the Wickersham Dome area, but others have found it on Twelvemile Summit and also along the highway east of Central, Alaska. It seems to like pine woods, the margins of moist wooded areas in shady mossy places and can often be found in a bed of pine needles. This species apparently has several medicinal uses, but we have never eaten or tasted it.

Species #61 – *Oxytropis scammaniana*

61. On the previous page you see the three-photo collage of *Oxytropis scammaniana (Fabaceae).* The common names of this species are Scamman's oxytrope, Scamman's locoweed, and Scamman's crazyweed. This species, as well as all members of the genus, produce swainsonine, a phytotoxin harmful to livestock, so don't let your cattle eat it! As you can see, the flowers are very showy. In the lower right photo, you can see some seedheads from the previous season. We have found it on both Twelvemile Summit and Eagle Summit, as well as along the Pinnell Mountain Trail. Note that this is a multi-stemmed species.

62. Below is a single beautiful shot of *Papaver macounii (Papaveraceae).* This is known by the common name Macoun's poppy. Several references make us suspicious as to whether this is truly *P. macounii*, the subspecies *discolor* or *P. radicatum* **ssp.** *alaskanum*. Our knowledge is insufficient to be certain. We are certain, however, that we really love finding this flower with its nodding stem and bright happy yellow color when we're hiking. We've found it at Angel Rocks, Eagle Summit, Twelvemile Summit, and all along the portions of the Pinnell Mountain Trail which we have hiked. There are additional photos on the following page.



Species #62 – *Papaver macounii*

Species #63 – *Parnassia palustris*

Species #63 – *Parnassia palustris*

63. The lower photo on the previous page and also the two photos on this page show you *Parnassia palustris (Celastraceae / Saxifragaceae / Parnassiaceae).* This is commonly called marsh grass of Parnassus, northern grass-of-Parnassus, or just grass-of-Parnassus as well as bog-star. It is not a grass and does not look like a grass, but common names often do not make much sense from a botanical viewpoint. We have found this species along the trail to the summit of Table Top Mountain (map – page 28). What family of plants does this truly belong to? Upon checking about twenty websites the family it is in seems to be about equally divided between the three families shown above.

Species #64 – *Parrya nudicaulis*

64. The two-photo collage on the prior page shows *Parrya nudicaulis (Brassicaceae).* The common names of this species are nakedstem wallflower and Parry's wallflower. It occurs in alpine meadows and well-drained hillsides lower in elevation. The flower color of this plant is quite variable and can range from white through a somewhat dark pink. We have found it at Grapefruit Rocks and along the Pinnell Mountain Trail between Twelvemile Summit and Eagle Summit. It is very difficult to capture the true colors of these flowers with a digital camera.

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65. The photo below and also the two-photo collage on the following page show *Pedicularis capitata (Scrophulariaceae*, but recently moved to the *Orobanchaceae* family). The only common name for this species is capitate lousewort. It is a small, higher elevation species. You will note that the flowers in the photo below are practically white, while the flower color in the two photos on the following page are more golden or yellow. At least one internet source states that this species has begun to recently show more color than it did in years past. Whether this is factual or not is unknown to us, but it's an interesting side note.

Species #65 – *Pedicularis capitata*

Species #6[illegible] – *P[illegible]icularis capitata*

Species #66 – *Pedicularis labradorica*

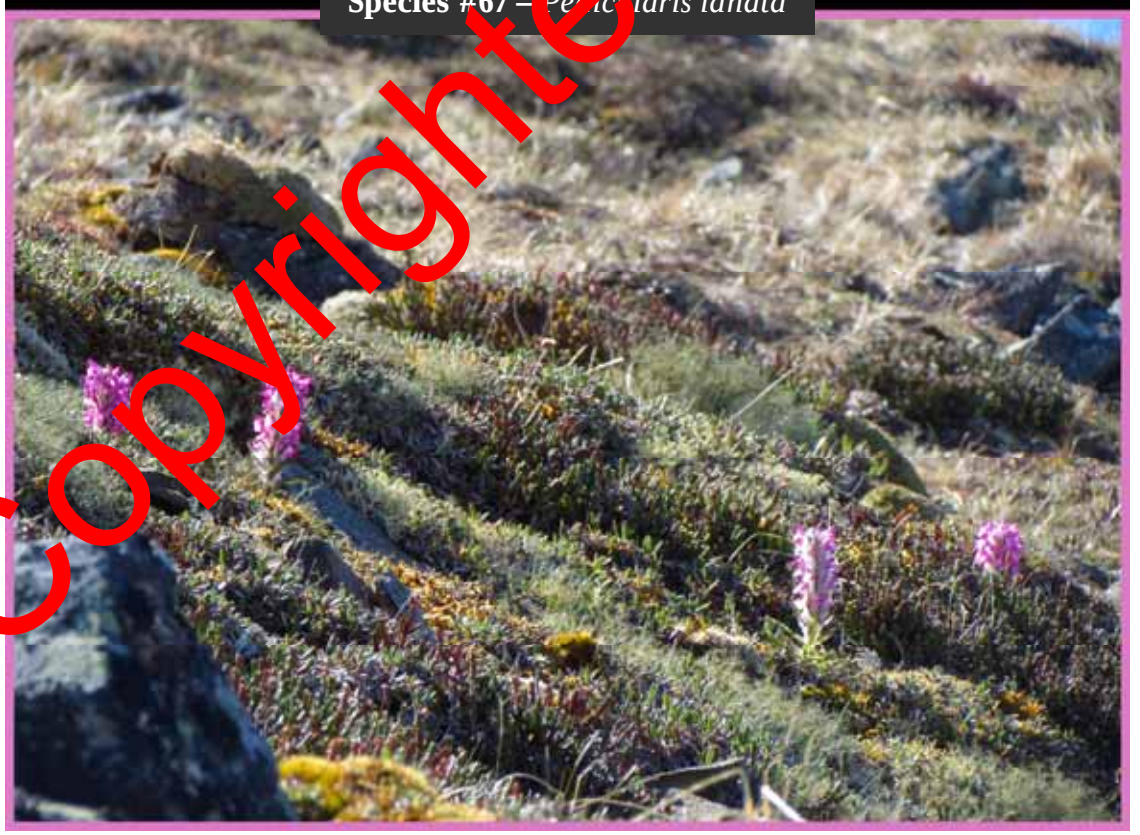
66. The photos to the left and at the upper left of the next page show *Pedicularis labradorica (Scrophulariaceae*, but recently moved to the *Orobanchaceae* family). The common names are Labrador lousewort and Labrador fernweed. We have found this species at three of our usual haunts. Our first photos of it were taken at Twelvemile Summit. We next found it on the Table Top Mountain Trail, and finally, we found it at Angel Rocks. As you can see, it is quite different from the previous *P. capitata*, so it's not a problem to confuse it with that one.

Species #66 – *Pedicularis [illegible]*

Species #67 – *Pedicularis lanata*

67. The photo just to the right and the photos on the following pages show *Pedicularis lanata* (*Scrophulariaceae*, but recently moved to the *Orobanchaceae* family). Its common names include woolly lousewort and bumble-bee flower. We really love this flower, it has so much beauty and, well, it's cute. Finding it also means that the new season has arrived and for the next month or two there are going to be some fine flower photography adventures to be had in the mountains.

Species #67 – *Pedicularis lanata*



Species #67 – *Pedicularis lanata*

Species #68 – *Pedicularis langsdorffii*

67 (continued)**.** Here, above on the left is a final shot of *Pedicularis lanata*. We hope that we have not included too many shots of it, it's just so amazingly beautiful. We hope that if you go into the mountains that you may have the pleasure of finding this species at its peak of blooming. By the way, in the lower photo on the previous page, note how this plant can occur scattered about on a hillside. In this spot there were many plants, but this was the most opportune photo spot.

68. Above and to the right is the first shot of *Pedicularis langsdorffii*. The family comments about the other species of *Pedicularis* also apply to this one – it was recently moved from the *Scrophulariaceae* to the *Orobanchaceae* family. The common name of this is Langsdorf's lousewort. The photo above and to the right is cropped so that it shows only the flower portion of the plant so that you may concentrate on that part, while the photo on the following page includes the entire plant so that you may have the opportunity to study the leaves, stem and flower as a whole. We have found this species only at Eagle Summit, and only in the month of June, although it most likely can also be found in other months.

Species #68 – *Pedicularis langsdorffii*

Species #69 – *Pedicularis oederi*

69. On the previous page is a four-photo collage of *Pedicularis oederi*. The family comments about the other species of *Pedicularis* also apply to this one – it was recently moved from the *Scrophulariaceae* to the *Orobanchaceae* family. The common names of this species are Oeder's lousewort and crimson-tipped lousewort. It is supposedly found only in the Alps, Norway and Alaska. The upper lips of the yellow flowers have brown to red tips and sometimes two additional red spots, giving rise to the second common name. We have spotted and photographed this species at Eagle Summit and along the Pinnell Mountain Trail between Eagle Summit and Twelvemile Summit. This is the final *Pedicularis* sp. which we have to show you.

70. *Petasites frigidus (Asteraceae)*, the Arctic sweet coltsfoot or Arctic butterbur, is a species of *Petasites* native to the Arctic and other cool temperate regions of the Northern Hemisphere in northern Europe, northern Asia and northern North America. After the plant has bloomed, the long petioled basal leaves appear and the stem elongates. We have found this species only along the Pinnell Mountain Trail close to the Twelvemile Summit end of it.

Species #70 – *Petasites frigidus*

Species #71 – *Polemonium caeruleum* **ssp.** *villosum*

Species #71 – *Polemonium caeruleum* ssp. *villosum*

71. The two-photo collage on the previous page and also the photo to the left on this page show you *Polemonium caeruleum* **ssp.** *villosum (Polemoniaceae)* – the tall Jacob's ladder. As you can see, this is a flower which is a very beautiful shade of blue. In addition, there are generally many flowers on a single plant, making it a pleasure to find and appreciate. We have found this species at Twelvemile Summit and along the Pinnell Mountain Trail from there to Eagle Summit. We have also found it at Table Top Mountain (map – page 28).

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72. The small flower photo below is a flower of *Polemonium pulcherrimum (Polemoniaceae).* This is known as the beautiful Jacob's-ladder, showy Jacob's-ladder, and skunk-leaved polemonium. As you can see in both this photo and also the two-photo collage on the following page, this species is more showy than the previously shown tall Jacob's ladder, probably why the common name calls this one the "showy" one! The leaves are primarily basal, but there are a few along the stem. The herbage is lightly hairy, densely glandular, sticky, and strongly scented, the odor reminiscent of skunk, a reason for the "skunk" common name.

Species #72 – *Polemonium pulcherrimum*

Species #72 – *Polemonium pulcherri num*

Species #73 – *Potentilla rubricaulis*

73. The flower and leaves shown to the left belong to *Potentilla rubricaulis (Rosaceae)*, commonly known as the Rocky Mountain cinquefoil and red-stemmed cinquefoil. There is one additional photo on the following page, which shows an overview of the entire plant. This species is a beautiful early bloomer and occurs on decomposed granite, as well as on other soils. We have found it on Grapefruit Rocks and also at the much higher elevation of Eagle Summit. In the Grapefruit Rocks area we have found it in bloom as early as May 29, but up on Eagle Summit we did not find it until June 23, nearly a month later. Both of the photos shown here were shot in the vicinity of Eagle Summit.

Species #73 – *Potentilla rubricaulis*

Species #74 – *Pulsatilla pate*

74. The lower photo on the previous page and the three photos just above show *Pulsatilla patens* (Ranunculaceae). This is commonly known as the pasqueflower, Eastern pasqueflower, prairie crocus, and cutleaf anemone. The previous page photo shows it after the flower has lost its petals and the seeds are beginning to form. The two photos on this page show it at its peak of blooming beauty. We have found this on the University of Alaska – Fairbanks campus on the steep south facing hillsides and we have also found it at Grapefruit Rocks.

Species #75 – *Pyrola asarifolia*

75. The two-photo collage on the prior page shows *Pyrola asarifolia (Ericaceae / Pyrolaceae).* The common names of this species are liverleaf wintergreen, bog wintergreen, pink pyrola, pink shinleaf, and pink wintergreen. It is considered one of the taller wintergreens. As you probably noted, there is disagreement as to whether this genus belongs to the *Ericaceae* or the *Pyrolaceae* family. We do not know which is correct, or the most recent. We have found this just north of Fairbanks along the Steese Highway in some damp areas.

Species #76 – *Pyrola grandiflora*

76. The spike of flowers to the left is *Pyrola grandiflora (Ericaceae / Pyrolaceae).* There is one additional photo on the following page, which shows the entire plant. With the species name "grandiflora" you might guess that the common name of this species is the largeflowered winter-green, and you would be correct. It is also known as Arctic wintergreen. There is the same argument over this species as to which family it belongs to – the *Ericaceae* or the *Pyrolaceae*, and again, we don't have the answer to that question. If the genus *Pyrola* has its own family, then it seems that the answer would be that it belongs to the *Pyrolaceae.* We have found this species in two locations. The first place we found it was along the Steese Highway in a damp area, just north of Fairbanks and the next time we found it was when we were hiking along the Angel Rocks Trail, down low along the Chena River. At least one source says that the only place that this occurs in the United States is here in the State of Alaska.

All *Pyrola* spp. contain a drug which is closely related to aspirin. There are several other medicinal uses noted for this species, but as to whether they can be trusted, we do not know. Of course, chewing the leaves for a while leaves a pleasant wintergreen flavor in your mouth.

77. In upper position on the following page is a single photo of *Ranunculus gmelinii (Ranunculaceae).* The common names of this species are Gmelin's buttercup and small yellow water-crowfoot. It is native to northern North America, where it occurs across Canada and the northern and higher-elevation regions of the United States. It is also present in Eurasia. It generally occurs with either four or five yellow petals per flower, but has been found with up to fourteen petals on a single flower. It should be noted that all species in the genus *Ranunculus* are considered toxic if eaten in large quantities and also cause skin irritation. The only place we have seen this tiny plant with its tiny flower is a few miles east of Central, Alaska along the Steese Highway.

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78. In lower position on the next page, and also on the page following, are shots of *Ranunculus nivalis (Ranunculaceae)*, the snow buttercup. This species is found in the United States only in Alaska. The same warning about it as above, of course, applies to this species. As you can deduce from the photos, this species has larger flowers and is a much larger plant than the small *Ranunculus gmelinii.* We have found this species only near Eagle Summit in a moist area.

Species #77 – *Ranunculus gmelinii*

Species #78 – *Ranunculus nivalis*

Species #78 – *Ranunculus nivalis*

As stated in the text on page 108, these two shots show *Ranunculus nivalis.*

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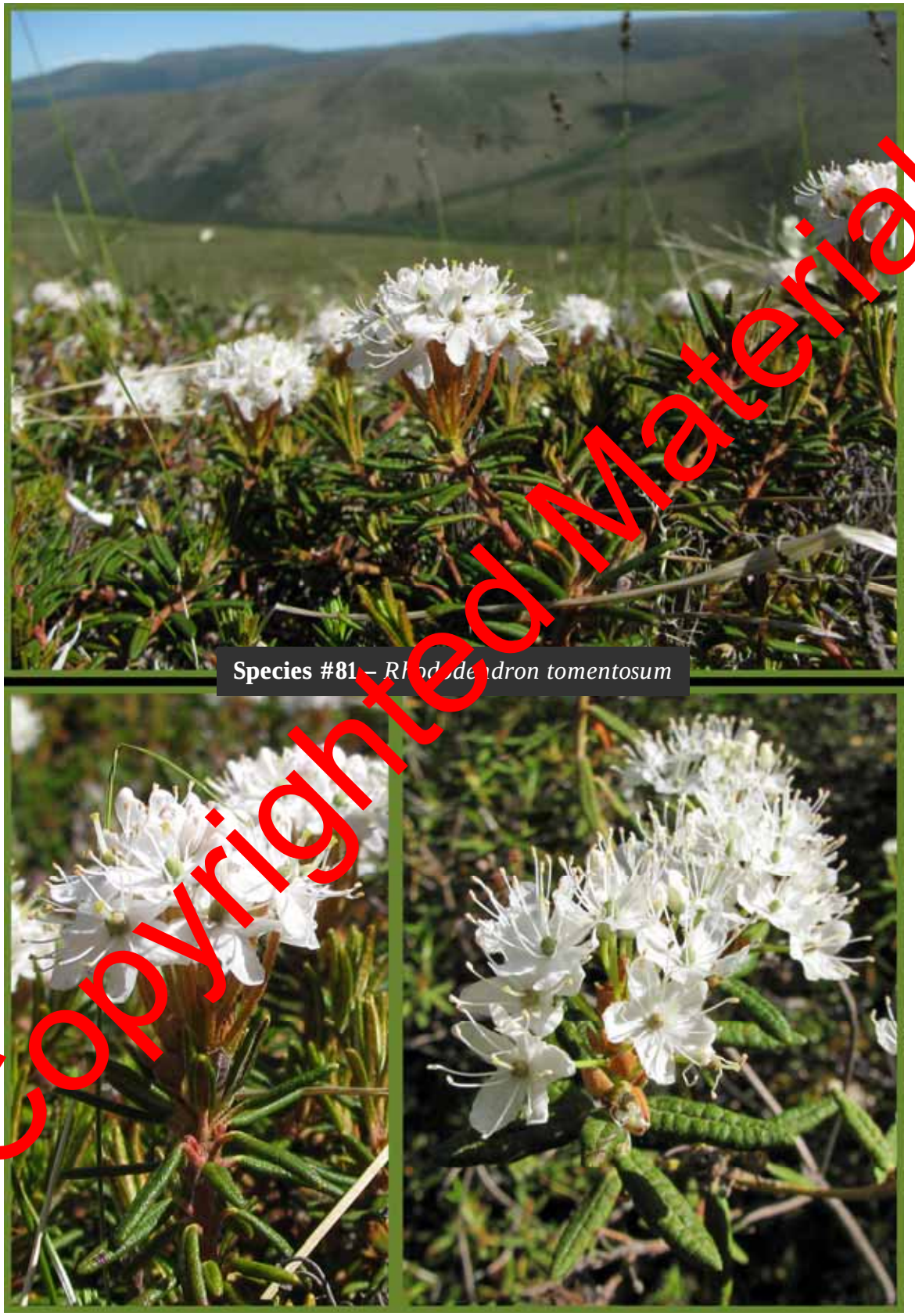
79. On the next page is a single photo of *Rhodiola integrifolia* **ssp.** *integrifolia* (*Crassulaceae*). It is known by the common names ledge stonecrop, Pacific roseroot, western roseroot, and king's crown. It is a succulent and we have found it only at Twelvemile Summit in June.

Species #79 – *Rhodiola integrifolia* **ssp.** *integrifolia*

80. The two-photo collage on the following page shows *Rhododendron lapponicum (Ericaceae).* This is commonly known as Lapland rosebay or Lapland rhododendron. Some authors call this species "the most striking flower in the arctic or alpine zone", but we do not necessarily agree. Where we have found this, it is very uncommon, small, and has so few flowers that it's difficult to call it striking at all. We have found it only on Eagle Summit and along the Pinnell Mountain Trail near Eagle Summit. If you stumble upon it, we wonder what you will say about it, will it be the most striking flower in the area where you find it?

Species #80 – *Rhododendron lapponicum*

81. On the following page is our three-photo collage of *Rhododendron tomentosum (Ericaceae).* This is known by the common names, marsh Labrador tea, northern Labrador tea, Labrador tea, and wild rosemary. Some references say that all parts of the plant contain poisonous terpenes that affect the central nervous system. First symptoms of overdose are dizziness and disturbances in movement, followed by spasms, nausea, and unconsciousness. The mere smell of the plant may cause headache to some people. The species has a very broad distribution that includes northern Europe, North America and Asia. We find it everywhere we like to go for wildflowers and hiking.



Species #81 – *Rhododendron tomentosum*

82. On the previous page is a shot of *Ribes triste (Grossulariaceae).* This is known as the northern redcurrant, swamp redcurrant, and wild redcurrant and is an Asian and North American shrub in the currant and gooseberry family. It is widespread across Canada and the northern United States, as well as in eastern Asia. Our photo shows the fruits, leaves and stems, so it is quite complete. The fruit is edible, but we thought it was a bit sour. You may want to note that currants are distinguished by their lack of any spines, prickles or thorns on the stems, which all gooseberries have to some degree. We have no photos of the flowers of this plant.

83. Just below and also on the following page are three photos of *Rosa acicularis* **ssp.** *sayi (Rosaceae).* The common names of this species include prickly wild rose, prickly rose, bristly rose, wild rose, and Arctic rose. It is a species of wild rose with a Holarctic distribution in northern regions of Asia, Europe, and North America. What is the difference between this and the *Rosa acicularis*? We are not 100% sure, some references indicate that **ssp.** *sayi* is merely a synonym for *R. acicularis*. If that is the case, well then, we are even more puzzled than before. It can be found in great abundance along the roads and highways of forested areas.

Species #83 – *Rosa acicularis* **ssp.** *sayi*

Species #83 – *Rosa acicularis* **ssp.** *sayi*

84. Just above is a photo of *Rubus arcticus (Rosaceae).* The common names used for this species are the Arctic bramble, Arctic raspberry, wineberry, dwarf raspberry, dwarf blackberry and nagoonberry. Its dark red fruit is considered a delicacy and large crops are harvested in Finland, where it grows prolifically along the margins of fields and openings. We have spotted it at both Angel Rocks and also along the Steese Highway on the way to Twelvemile Summit.

85. On the following page you'll find photos of *Rubus chamaemorus (Rosaceae).* This species is called cloudberry, bakeapple, knotberry, and low-bush salmonberry. Unlike most *Rubus* species, the cloudberry is dioecious, and fruit production by a female plant requires pollination from a male plant. Like the previous species, this one is also very delicious and much research has gone into its cultivation. When eaten fresh, cloudberries have a distinctive tart taste. When over-ripe, they have a creamy texture somewhat like yogurt and a sweetened flavor. They are often made into jams, juices, tarts, and liqueurs. In Finland, the berries are eaten with heated "leipäjuusto" (bread cheese), a local cheese, as well as with cream and sugar. In Sweden, cloudberries and cloudberry jam are used as a topping for ice cream, pancakes, and waffles. In Norway, they are often mixed with whipped cream and sugar to be served as a dessert called "Multekrem" (cloudberry cream), as a jam or as an ingredient in homemade ice cream. Cloudberry yoghurt is a supermarket item in Norway. We have found this species at Wickersham Dome, Table Top Mountain (map – page 28), Grapefruit Rocks and Angel Rocks.

Species #8 - *Rubus chamaemorus*

Species #86 – *Salix phlebophylla*

Species #86 – *Salix phlebophylla*

86. On the previous page and also on this page are several photos of a cute little plant. Based upon the upper left photo on the previous page, we have been heard to call this the "Christmas tree plant". It's not normally called that though, it is *Salix phlebophylla (Salicaceae)* and the accepted common names are skeletonleaf willow and skeleton-leaf willow. It is a dwarf (very dwarf in our humble opinion) willow which is found in the colder parts of the Western United States, Europe and Asia. It is cultivated as an ornamental plant and also for ground cover. It is a clonal species, so the photo above is probably a single clone. We've found this species along the Pinnell Mountain Trail between Twelvemile Summit and Eagle Summit, as well as at Wickersham Dome. It could probably also be found at Angel Rocks.

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87. On the following page is a four-photo collage which shows *Saussurea angustifolia* **var.** *yukonensis (Asteraceae / Compositae* – depending on which reference you believe). This is known by the common names Yukon saw-wort and narrowleaf saw-wort. It occurs only in the far north. As you can discern from the upper right photo, it is a small plant, but there is a taller variety **var.** *angustifola*, which grows in the lowlands. We have found only the upper elevation variety, the **var.** *yukonensis* and we've only found it along the Pinnell Mountain Trail between Eagle Summit and Twelvemile Summit. It's fairly easy to overlook, so keep your eyes open.

Species #87 – *Sau[illegible]are[illegible]anc[illegible]ustifolia* **var.** *yukonensis*

Species #88 – *Saxifraga bronchialis* **ssp.** *funstonii*

88. Just above is a collage which shows *Saxifraga bronchialis* **ssp.** *funstonii (Saxifragaceae).* This is a small, often matted species of higher elevations. It is known as the spotted saxifrage, matted saxifrage, yellow-dot saxifrage, and Funston's saxifrage. We have found this species at only two of our regular haunts, Table Top Mountain (map – page 28) and in the Eagle Summit area. However, it probably occurs all along the Pinnell Mountain Trail.

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89. On the following page is a two-photo collage of *Saxifraga hirculus (Saxifragaceae).* The common names of this species are marsh saxifrage, yellow marsh saxifrage, and bog saxifrage. It is a very small plant and we are sorry to say that we have no photos which show the plant or plant parts other than the flowers. As you can see in the upper photo, the flowers are borne on a tallish red stem. The only place we've seen it is near Twelvemile Summit.

Species #89 – *Saxifraga hirculus*

Species #90 – *Saxifraga nelsoniana*

90. Just above is a two-photo collage of *Saxifraga nelsoniana (Saxifragaceae).* This species is generally a streambed species. It has a relatively compact terminal cluster and is commonly known as the heartleaf saxifrage, cordate-leaved saxifrage, brook saxifrage, and salad greens. We have found this plant at only two of our usual haunts – Eagle Summit and Angel Rocks. As you can see, it is a rather tall species. There is one additional photo on the next page.

Species #90 – *Saxifraga nelsoniana*

Just to the left is the final shot of *Saxifraga nelsoniana* which was mentioned on the previous page. Now let's move on.

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91. Below and also on the following page are our best shots of *Saxifraga tricuspidata (Saxifragaceae)*. It is known by the common names three-toothed saxifrage and prickly saxifrage. In the early spring the leaves of this plant are quite red, if you are out at that time of the year. The leaves are shown in the photo collage on the following page. The beautiful photo just below was shot on Wickersham Dome on June 16th. We have also found this species at Angel Rocks in the higher elevation areas. It is an interesting plant with the gradation of colors on the flower petals from light yellow in color down near the center, to an orange color as you near the outer edge.

Species #91 – *Saxifraga tricuspidata*

Species #91 – *Saxifraga tricuspidata*

92. On the following page and also on the page which follows that are two photos of *Senecio lugens (Asteraceae | Compositae).* The photo on the next page shows the upper stalk and flowers and the photo on the following page shows the lower portion of the plant. It is known by the common names, small blacktip ragwort and black-tipped groundsel. We have found it only near Central, Alaska alongside the Steese Highway.

Species #92 – *Senecio lugens*

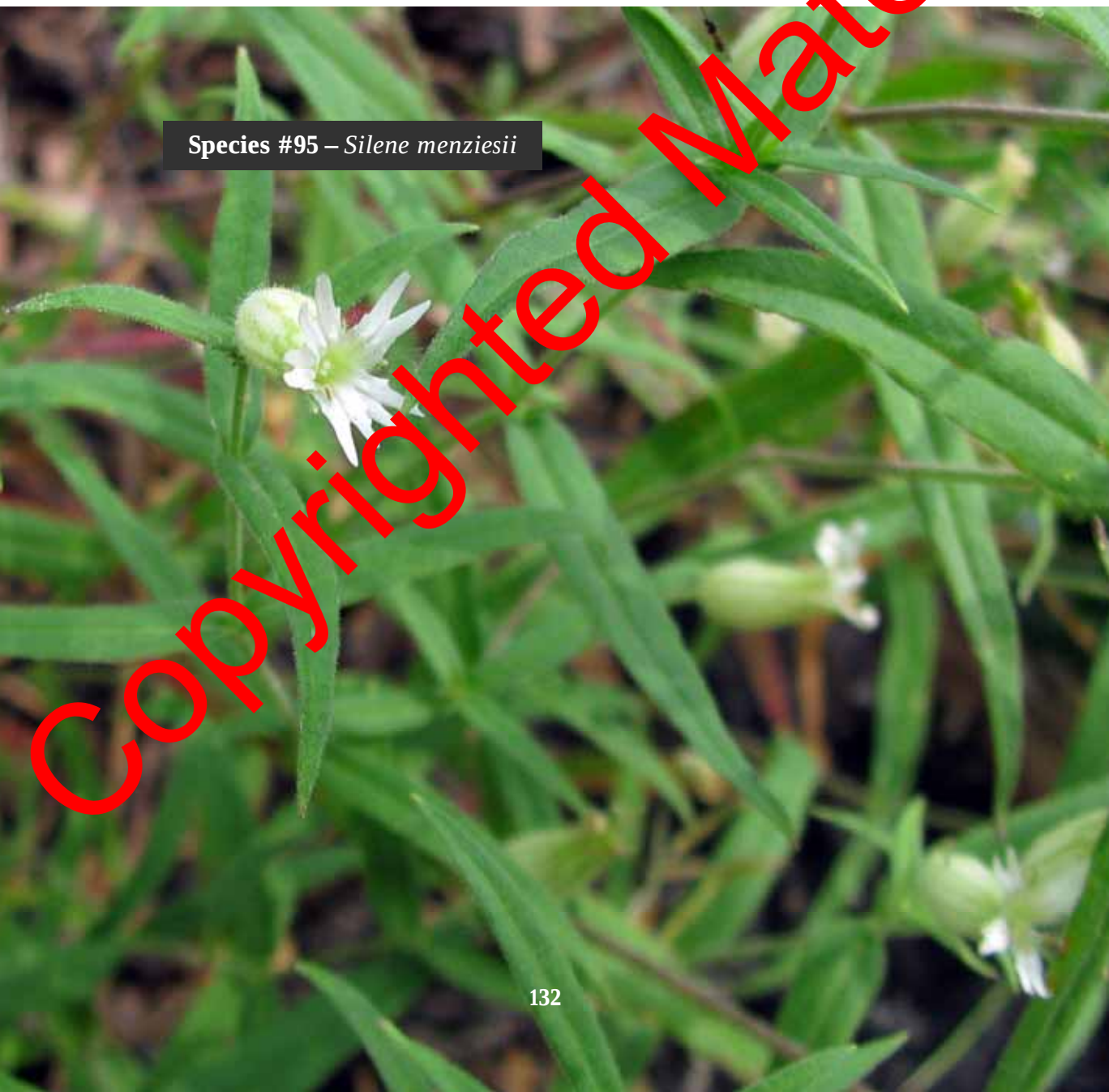
93. On the following page are two photos of *Shepherdia canadensis (Elaeagnaceae).* It is commonly called Canada buffaloberry, russet buffaloberry, soopolallie, soapberry, and soapberry. It is one of a small number of shrubs of the genus *Shepherdia* that bear edible berries. The fruit is usually red, but one species has yellow berries. The berries have a bitter or even soapy taste. We do not consider them edible. We have seen this species only at Lower Grapefruit Rocks, we'd never seen it at any other location, so we were very surprised to find it. I had seen and tasted it many years when I lived in Oregon's Cascade Mountains, but had not seen it since then, so you may be able to imagine my surprise when we found it while looking around Lower Grapefruit Rocks. We have spoken with a couple who live near there and they informed us that it's surprising to them, the number of different species of berries which they can find around there. We have read reports that it is also found around Central, Alaska.

Species #93 – *Shepherdia canadensis*

Species #94 – *Silene acaulis*

Species #94 – *Silene acaulis*

94. The photo collages on the previous two pages both show *Silene acaulis (Caryophyllaceae).* It is commonly known as moss campion and cushion pink. It is a small mountain-dwelling wildflower that is common over the high arctic and tundra in the higher mountains of Eurasia and North America. This is a low, ground-hugging plant. It may seem densely matted and moss-like. The dense cushions are up to a foot or more in diameter and range in height from about two – six inches. It looks like a moss if it does not have flowers when you see it, and in fact, when we first saw it we thought "those are huge mounds of moss" and then we found a plant with flowers and took a closer look. We were amazed. We have read that the soil under this cushion can be several degrees warmer than the surrounding soils due to the heat absorption qualities of the cushion. We have found it only in the Eagle Summit area.



Species #95 – *Silene menziesii*

Species #95 – *Silene menziesii*

95. Both the photo on the previous page and also the one on this page show *Silene menziesii (Caryophyllaceae).* This is commonly known as Menzies' campion and Menzies' catchfly. It can be found in many types of habitats, but we have found it only in the Angel Rocks area. It does not have an especially attractive flower, and it is not large either, it's just a small, nondescript, white flower which you could easily walk right past and not even notice that it was there. It is found primarily down in the more damp locations rather than up on the alpine slopes.

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96. The next species we'll show you is *Silene uralensis* **ssp.** *uralensis (Caryophyllaceae).* This amazing little plant is known by the common name petalous catchfly. We have found this quite rarely and only on the south side of the Steese Highway near Eagle Summit. It is such a weird looking little plant that when we first saw it, I can't

Species #96 – *Silene uralensis* **ssp.** *uralensis*

spotted it first, we immediately hollered for the other one to come and see it. Generally, plants are common enough that when we are wandering around, we just assume that the other one of us will spot it and capture it on film, but not this one. We had to make sure that we both had a chance to see such weirdness. In 2016 we found only one plant, but the following year we found three or four plants.

Species #96 – *Silene uralensis* **ssp.** *uralensis*

Species #97 – *Solidago multiradiata*

97. immediately above is a two-photo collage of *Solidago multiradiata (Asteraceae)*. This species is commonly known as Rocky Mountain goldenrod, northern goldenrod, and alpine goldenrod. It is native to North America, where it can be found throughout the northern regions. It is a common plant of disturbed areas and the bees and butterflies just love it. To date we have found it only at two of our haunts, Table Top Mountain (map – page 28) and Angel Rocks.

98. On the following page is a two-photo collage of *Spiraea stevenii (Rosaceae)*. The common names for this include the Alaska spiraea, Beauvard's spiraea, and Steven's spiraea. We have found it at only two locations, Grapefruit Rocks and Table Top Mountain. In the collage on the next page the upper photo was taken on May 29th and the lower photo was taken on July 9th.

Species #98 – *Spiraea stevenii*

99. The photo to the right shows you the flower and a very out of focus base of the plant of *Stellaria longipes* **ssp.** *longipes (Caryophyllaceae).* The common names are longstalk starwort, Goldie's starwort, and chickweed. It grows in a wide variety of habitat types, including tundra and taiga and many areas farther south with subalpine and alpine climates. It is extremely variable in morphology, its form depending on both genetic makeup and environmental conditions. The photo here was taken very close to Twelvemile Summit early in the season. We have not seen it at other locations.

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100. On the following page is a three-photo collage of *Synthyris borealis (Scrophulariaceae).* At least one reference reports that this genus has been moved to the family *Plantaginaceae.* This cute little plant is known commonly as northern kittentails, Alaska Synthyris, and Alaska kittentails. It is a fairly tiny mountaintop species which we have found near Twelvemile Summit end. The genus *Synthyris* is known as the kittentails. This genus contains 20 scientific plant names of species rank and of these 20, only 12 are accepted species names. It is so small that if you do not have your eyes open you will most likely walk right past and not even notice it. Please note the existence of an albino form.

Species #100 –
Synthyris borealis

Species #101 – *Tephroseris lindstroemii*

101. The three-photo collage on the previous page shows *Tephroseris lindstroemii (Asteraceae).* This species is known commonly as twice-hairy butterweed, twice-hairy groundsel (because it has two kinds of hairs on its leaves), and northern groundsel. Take a close look at the two upper photos and even though the photos were not taken specifically to show the leaves, you can see a kind of cob-webby (arachnoid-tomentose) type of hairs quite easily. The other hair type, which you can't see so much, is described as villous-tomentose (not interwoven). We have found this species only in the area of Eagle Summit.

102. Just below and also on the following page are a total of three photos of *Tephroseris kjellmanii (Asteraceae).* The common name of this plant is Kjellman's groundsel. It should be noted here that all species of *Tephroseris* are variable and poorly defined; their nomenclature is complex and the present treatment is provisional. In the past *Tephroseris* has been placed within the genus *Senecio* in most North American floristic studies. We have found this species only between Twelvemile Summit and Eagle Summit and on the Pinnell Mountain Trail.

Species #102 – *Tephroseris kjellmanii*

Species #102 – *Tephroseris kjellmanii*

103. On the following page is a two-photo collage of *Tephroseris yukonensis (Asteraceae)*. The common name of this is Yukon groundsel. As you will note when you see the photos, it is a very hairy plant. It is found only at higher elevations and only in the far north. At least one source shows that it occurs only in Alaska and the Yukon Territory of Canada. We have found it at Twelvemile Summit and Eagle Summit, as well as along the Pinnell Mountain Trail. It is an attractive plant, with its flower heads nodding with the mountain breezes.

Species #10[illegible] *Tephroseris yukonensis*

104. The photo just to the left shows *Trientalis europaea (Primulaceae).* It is known by the common names, chickweed-winter-green, northern starflower, and Arctic starflower. The leaves take on an attractive copper hue in the autumn. Each plant has only one flower and in the photo you can see the bud, which is rising from a different plant than the one which the flower is on. The flowers can have either six or seven petals. As the name implies, the overall shape of the flower more or less resembles a star. To date we have found this species only along the Chena River on the Angel Rocks Trail.

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105. On the following page is a two-photo collage which shows *Vaccinium uliginosum (Ericaceae).* It is known as bog bilberry, bog blueberry, northern bilberry, and western blueberry. It is native to cool temperate regions of the Northern Hemisphere, at low altitudes in the Arctic, and similar environs around the globe. This is, to us folks who live in Alaska, the blueberry, and we go out of our way to find places where it grows and then go out and harvest it to make jams and jellies, pies, blueberry pancakes and much more. You can find it at all of our favorite haunts.

Species #105 – *Vaccinium uliginosum*

106. The two photos on this page and the one on the following page show *Vaccinium vitis-idaea* aka *Vaccinium vitis-idaea* **ssp.** *minus (Ericaceae).* This is commonly known as the lingonberry, lowbush cranberry, mountain cranberry, and rock cranberry. It is very edible and can be made into wonderful jams and jellies. We find it virtually everywhere, but when we want to pick a bunch of them for making into foods we go to the vicinity of either Angel Rocks or along the US Creek Road on the way to Table Top Mountain (map – page 28).

Species #106 – *Vaccinium vitis-idaea*

Species #106 – *Vaccinium vitis-idaea*

107. On the following page is a two-photo collage of *Valeriana capitata (Valerianaceae)*. The common names of this species are capitate valerian and mountain valerian. It may interest you to know that this genus is named for the old Roman province of Valeria, where these plants were common. At least two references show this to be a medicinal plant and state that the whole plant, but especially the root, is anti-spasmodic, carminative, diuretic, hypnotic, powerfully nervine, sedative and stimulant, but that some caution is advised because at least one member of the genus is considered to be poisonous when raw and *V. officinalis* is a powerful nervine and sedative that can become habit-forming. WOW! So, let's just leave it alone. In the photo collage, the left photo shows a plant in which the stem has elongated and is in bloom, while the right photo shows a budding plant prior to stem. elongation. We have found this species only near Eagle Summit and along the Pinnell Mountain Trail near there.

Species #107 – *Valeriana capitata*

108. On the following page is a single photo of *Viburnum trilobum (Adoxaceae).* Common names of this plant include cranberrybush viburnum, American cranberrybush, and high bush cranberry. Although often called highbush cranberry, it is not a cranberry. The name comes from the red fruits which look superficially like cranberries, have a similar flavor, and ripen at the same time of year. The fruits are sour and rich in vitamin C. They can be eaten raw or cooked into a sauce to serve with meat or game.

Species #10[illegible] – *Viburnum trilobum*

Species #109 – *Viola biflora*

109. The next species, with a photo to the left and two additional photos on the next page, is *Viola biflora (Violaceae).* The common names for this species are alpine yellow-violet, arctic yellow violet, yellow wood violet, and twoflower violet. Kazuya and I have been known by our friends as "violets freaks" for several years. When we lived in Japan, we would go out in the spring specifically to hunt for violets, and during the years we spent in Japan, we found and identified about 70 different species during our time there. When we came to Alaska, we feared that we'd never see another violet, but we were happy that we do have three different species of them here in Interior Alaska. This one, *Viola biflora*, is one which we also found in the higher mountains in the northern portions of Japan, so it was not a new one for us.

Species #109 – *Viola biflora*

Species #110 – *Viola epipsila* ssp. *repens*

110. The photo to the immediate left, as well as the photos on the following page show *Viola epipsila* **ssp.** *repens (Violaceae).* This violet goes by the common names dwarf marsh violet, northern marsh violet, creeping marsh violet, and northern palustrine. It inhabits streambeds above the high-water mark. We have found it at Angel Rocks close to the trail, along the edges of the Granite Tors 2-mile loop trail and in a ravine to the west of Twelvemile Summit. It seems strange to us that it is referred to as "dwarf" as it compares in size to most of the other violets we have ever seen.

Species # 10 – *Viola epipsila* **ssp.** *repens*

Species #111 – *Viola renifolia*

111. Here is the final species we have to show you, and it happens to be from our favorite genus. This is *Viola renifolia (Violaceae)*. This is commonly known as the kidney-leaved violet or white violet. It is native to northern North America, where it has a widespread distribution across Canada and the northern United States as far south as Washington, Colorado, and New York. We have found this species right here in our yard as well as on the University of Alaska – Fairbanks campus in a wooded area on the west side of the campus. There is one additional photo on the following page, the final photo for this book.

Species #111 – *Viola renifolia*

We sincerely hope that you enjoyed and also learned something by reading or looking through this book. If you would like any further information about any of these genera or species there is a great abundance of it available on the internet. If you want to e-mail me with specific questions as to precise locations where we found something you may do so through the email link on my website, which can be found at http://danwiz.com. I hope to maintain this site as long as I am alive. I attempt to update it about 5 or 6 times per year.

THE END

ABOUT THE AUTHORS

Daniel Wieczorek was born in 1947 in Ionia, Michigan. He graduated from the University of Michigan with a B.S. in Forestry in 1969. He moved to Oregon to work in the field of forestry in 1971. That was followed by a move to Alaska in 1975, where he continued his career in forestry. After about a 14-year career in forestry, Daniel decided to do something different and he served as a Peace Corps Volunteer in The Philippines from 1985 – 1987. Upon completion of his Peace Corps Service, he returned to Alaska, where he attended the University of Alaska – Fairbanks and received an M.B.A. in 1991. This was followed by a move to South Korea in 1992, where Daniel taught English to Korean people wishing to improve their English Language skills. Daniel's next stop was in New York City, where he worked as temporary staff at Deutsche Bank from 1998 – 2001. He left NYC in March 2001 and moved on to Mitaka City, Tokyo, Japan. He taught English in Japan for 15 years and ended up teaching as a career for about 20 years before retiring with his life partner, Kazuya, to Fairbanks, Alaska. He has been hiking, climbing and doing photography since he was 12 years old.

Kazuya Yamazawa was born in 1979 in Shinjo City in Yamagata Prefecture, Japan. He was raised in Funagata Town in Yamagata Prefecture. He graduated from Tokyo University in 2005. Since that time, he has worked in several fields, but primarily in Cram Schools around the Mitaka City area of Japan. In 2016 he moved to Fairbanks, Alaska with Daniel, where he is now the owner/baker of "*Kazuya's Baked Delights*".

Daniel and Kazuya met in 2001 and they have been hiking, mountain climbing and doing photography together since that time. They have been happily married since 2015.

NOTES

Photo Credits:

Daniel's Photos:

Pages 11 lower, 27 upper and lower left, 29, 32, 33 upper, 34 all, 35 all, 42, 44 upper, 52 upper, 53 upper left, 54, 59 upper left and right, 68 upper left, 72 all, 76 all, 78 all, 82 right, 83 all, 91 right, 92 lower, 94 upper left and right, 96 lower, 97 upper left, 99 upper right, 105 top, 107, 109 bottom, 115, 118 upper, 119 upper and lower left, 129, 130 upper, 131 all, 134 lower, 138 all, 139 lower, 142 upper, 143, 145 upper left, 147 right, 148 lower, 149 upper left.

Kazuya's Photos:

Pages 7, 8, 9 all, 10, 11 upper, 12 all, 13 all, 14 all, 15 all, 17 all, 18 all, 19 all, 20 all, 21 all, 22 all, 23 all, 24 all, 25 all, 26 all, 27 upper and lower right, 30 all, 31 all, 33 lower, 36 all, 37, 38 all, 39 all, 40, 41, 43, 44 lower left, 45 all, 46, 47 all, 48, 49 all, 50, 51 all, 52 lower, 53 upper tight, lower left, lower right, 55 all, 56 all, 57 all, 58 all, 59 center and lower left, 60 all, 61 all, 62 all, 63, 64, 65 all, 66, 67 all, 68 upper right, lower left, lower right, 69, 70, 71 all, 73 all, 74 all, 75 all, 77, 79 all, 80 all, 81, 82 left, 84 all, 85 all, 86, 87 all, 88 all, 89, 90 all. 91 left, 92 upper, 93, 94 lower, 95 all, 96 upper, 97 upper right, 98, 99 upper left, lower left and lower right, 100 all, 101 all, 102 all, 103 all, 104 all, 105 both lower, 106 all, 108, 109 top, 110 all, 111, 112 all, 113 all, 114, 116 all, 117, 118 both lower, 119 upper and lower right, 120, 121 all, 122 all, 123 all, 124 all, 125 all, 126 all, 127, 128, 130 lower, 132, 133 upper left, 134 upper, 135 all, 136, all, 137, 139 all upper, 140, 141 all, 142 lower, 144 all, 145 bottom, 146, 147 left, 148 upper, 149 all, 150 all, 151 all, 152.