



Castilleja

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Soaking up the Rays

Jelm Mountain is site of the world's largest infrared observatory and boasts a heat-seeking flora. It harbors cacti, plants that photosynthesize at high temperatures (Crassulacean Acid Metabolism.)

By May, *Pediocactus simpsonii* (hedgehog cactus; also called mountain cactus) puts out an audacious display of flowers at Jelm Mountain, even before the frost-free growing season has started. The nine-state distribution of hedgehog cactus is centered on the Rocky Mountains, and it reaches elevations of 3500 m as reported in the "Flora of North America" (Heil and Porter 2003)..Other species information is on this page.

Note: The Wyoming Infrared Observatory (WIRO) is at 9656 ft (2943 m) near Woods Landing, WY. For more information about WIRO, see: www.physics.uwyo.edu/~amonson/wiro/wiro.html. BH



Above: *Pediocactus simpsonii* (hedgehog cactus). Photo by Robert and Jane Dorn. From: Dorn and Dorn 2007. (see book review, p. 4; and the WNPS homepage to see photo in color)

Below: Gardening tips for hedgehog cactus. (From Dorn and Dorn. 2007).

Pediocactus simpsonii

pea-dee-oh-kack-tus simp-soan-ee-eye

Common Names: Hedgehog Cactus, Simpson Ballcactus

Family: Cactaceae - Cactus

Native Regions: 1 - 7

USDA Zone: 4

Habit: perennial cactus, stems ball shaped, about half the ball above the soil surface, covered with spines, to 6 inches across and 4 inches tall, stems single to clustered, slow growing

Leaves: none

Flowers: yellowish-green or pink to light purple with yellow centers, to 1 inch across, several flowers at top of stem, (April) May to July

Native Habitat: rocky or gravelly places in plains, basins, and mountains

Culture: full sun to light shade, dry, well drained soils, not tolerant of hot summers, usually recedes some into the ground in winter; cold hardy; good for cactus garden or rock garden

Propagation: seed; small plants are easy to transplant; in nursery trade

WNPS News

2007 Wyoming Plant Conference is posted!

All powerpoint presentations given at the 2007 Wyoming Plant Conference, held March 20-21, are now posted as pdf files at the WNPS homepage: www.uwyo.edu/wyndd/wnps/wnps_home.htm (remaining thru June). If you missed the event... or didn't record everything you needed - take a look!

Thank you to all presenters and every participant. The Conference and workshops were outstanding, made all the more so by bringing together about 120 botanists from around the state and region.

Please renew if "06" is written after your name on the mailing label of this newsletter.

Teton Chapter Event

Wednesday, May 16, 7:00 p.m.

Location: Wyoming Game & Fish Office, 420 North Cache Street in Jackson

Join Jennifer Whipple, Yellowstone National Park botanist, to learn about wetland plants of Yellowstone National Park and environs. Hot and cold waters mingle to create complex and dynamic wetland systems. This complexity leads to an interesting array of species, from sundews to spike-rush.

The Teton Chapter is currently organizing summer field excursions. For a complete schedule contact Amy Taylor (ajrtaylor@hotmail.com)

Bighorn Native Plant Society Event

Sunday July 15 8:30 a.m.

Location: Rendezvous at Dayton High School parking lot just past the town of Dayton on Highway 14 (8:30 am) or at about 9:30 at the Burgess Junction Visitor Center.

Leader: Dick Birkholz

Come for high alpine adventure!

Treasurer's Report: Balance as of 4/23/07:

General Fund: \$1472.30; Markow Scholarship Fund: \$816.00. Total Funds: \$2,288.30 .

New Members: Please welcome the following new members to WNPS: Cora Botello, Rock Springs; Paula Edwards, Estes Park, CO; Emily Levine, Lincoln, NE; Jan McKee, Cheyenne; Faith Ryan, Jackson; Chelsea Vollmer, Rapid City, SD.

2007 Scholarship Winners: The 2007 Markow WNPS Scholarship winners are David Scott (University of Wyoming), masters candidate who is completing a floristic inventory of Grand Teton National Park and Pinyon Peak highlands; and Mark Lesser (University of Wyoming) doctoral candidate who is documenting Ponderosa pine colonization and expansion records, associated genetic structure, and influence of past climates on species' range expansions. Both scholars were presented with the \$500 award at the Conference. The merit (soundness and significance) of all proposals was outstanding. Thanks go to all who apply ... and to all in WNPS who support scholarships.

Wyoming Native Plant Society

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WNPS Board – 2006-07

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(Newly-elected/ re-elected Board members have '07 after their name. The '06 Board members come off in summer '07.)

Contributors to this issue: Richard Dunne (RD), Walter Fertig (WF), Bonnie Heidel (BH), Lynn Moore (LM), Amy Taylor (AT). Please send news and announcements - the next newsletter deadline is September 22.

Newsletter Editor: Bonnie Heidel (Laramie; bheidel@uwyo.edu)

Teton Chapter: PO Box 82, Wilson, WY 83014 (Joan Lucas, Treasurer)

Bighorn Native Plant Society: PO Box 21, Big Horn, WY 82833 (Jean Daly, Treasurer)

Webmaster: Melanie Arnett (arnett@uwyo.edu)



2007 Wyoming Native Plant Society Meeting
Casper Mountain Rises from the Ashes

June 15 and 16 (Friday and Saturday)

Two days of exciting Wyoming Native Plant Society events are in store for June 15 and 16

Friday, June 15, @ 10:00 a.m.

Blowout *Penstemon* field trip option. By special arrangements, we will visit dunes harboring blowout penstemon (*Penstemon haydenii*).

Start: Meet along the Miracle Mile of the North Platte River. Located between Pathfinder and Seminole Reservoirs at the BLM parking lot and picnic area by the Co. Hwy 351 bridge (crossing the North Platte River north of the Kortez Dam). The parking lot and picnic area is on the west side, the first turn as you head north from the bridge.

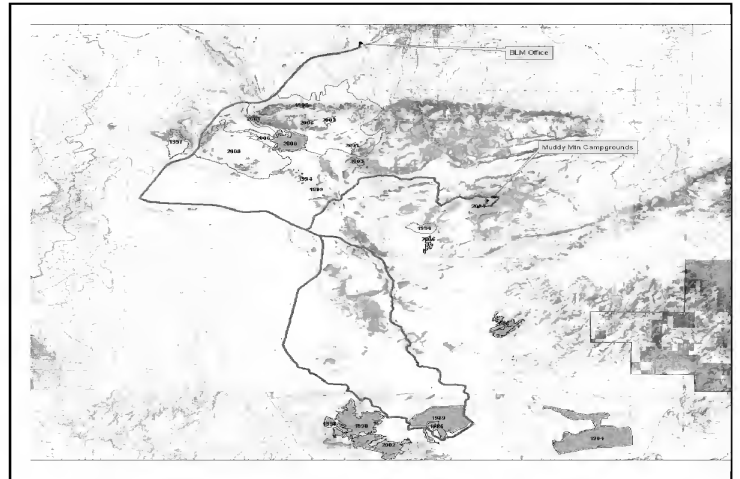
Accessible from Alcova or Sinclair.

*Bring a lunch, water, and be set for sun, wind and assorted weather. High vehicle clearance is recommended; carpooling is encouraged. Requires extended hiking.

Saturday, June 16, @ 9:30 a.m. Tour of Bates Hole and Casper Mountain by George Soehn (BLM) and George Jones (Wyoming Natural Diversity Database). Explore Casper Mountain! Learn about the fire history, decline of the aspen communities, and forest diseases in the lodgepole and limber pine stands. Explore the mountain big sage communities on Muddy Mountain. Tour will include discussion of vegetation and geology, highlight plants known only from this area, and the array of early summer flowers.

Start: BLM Casper Field Office, located at 2987 Prospector Drive on the west end of town. Head West on Highway 220 (CY Avenue), pass Wyoming Boulevard, turn right on Prospector (CY True Value Hardware/Timberline Sports) and follow Prospector all the way to the river, the Casper Field Office is at the end of the road.

*Bring a lunch and water. The tour will end late in the afternoon at the Lodgepole Campground on Muddy Mountain. The caravan will make numerous stops.



Above: Saturday tour map with fire boundaries mapped; enlarged copies will be provided

Saturday Evening. No-host potluck at Lodgepole Campground (Muddy Mountain). Following dinner, a short meeting of the WNPS will take place at the campground, and a campfire is likely.

Camping Information: Call Lynn Moore (307-472-3603) or email at Lmflora@alluretech.net for a Friday or a Saturday campsite reservation. The camping fee is \$5.00 (pay when you come). Lodgepole Campground is about nine miles south on Wyoming Highway 251 to the top of Casper Mountain, 251 ends but continues on as County Road 505. Continue on CR 505 for approximately three miles until the pavement ends, then continue an additional three miles to the intersection with Circle Drive. Follow the BLM gravel road to the Campground. LM

Lodging Information: Information is available from the Casper Area Convention and Visitor's Bureau, <http://www.casperwyoming.info/> ; or call 1-800-852-1889.

Remember: Sunday, June 17 is Father's Day!

Botanist's Bookshelf

Growing Native Plants of the Rocky Mountain Area. By Robert D. Dorn and Jane L. Dorn. 2007. 252 pages. Book version: \$82.94 plus postage, available at www.lulu.com/content/768231. CD-ROM version: \$7.50 plus postage, available at www.lulu.com/content/787924.

Review by Walter Fertig

Perhaps unique among all animals, humans have an innate need to garden. The earliest gardeners (dating back 14,000 years) were driven primarily by a need for food and fiber. Besides cereal grains, some of the earliest edible crops grown by people included showy flowers such as dahlias, sacred lotus, violets, and primroses. These latter species eventually fell out of favor as new edible species were brought into cultivation, yet they continued to be grown into modern times. Though we may never know if our Neolithic ancestors had an aesthetic sense, is it so far-fetched to assume that they didn't also enjoy the beauty of the crop flowers that they grew?

Nearly as ingrained as the need to garden is the desire to grow new and unusual plant species. Since the 15th Century, European explorers and traders have scoured the Earth for previously unknown plants to name, categorize, and introduce into horticulture. While many introduced species have been beneficial, others have escaped to become serious pests, disrupting natural habitats, displacing vulnerable native plants, and competing with more desirable crop species for space and nutrients.

The invasive species crisis has contributed to a renewed interest in native plants as an alternative for use in gardens and public landscaping. Natives are increasing in popularity due to their adaptability to local soils and climates, and because they usually require less water and less care once established. Gardeners are also increasingly learning that native species are just as attractive as introduced species. With rising demand, natives are becoming more readily available commercially.

The surge in popularity of native plants is reflected in the growing number of books devoted to native plant cultivation and garden design. A

new entry into this field is *Growing Native Plants of the Rocky Mountain Area*, self-published by Robert and Jane Dorn. The Dorns are no strangers to members of the Wyoming Native Plant Society – Bob is author of *Vascular Plants of Wyoming* (the state's most current and comprehensive plant identification manual), and Jane and Bob have written a guide to Wyoming birds and birding areas. This foray into horticulture may seem like a new direction, but actually the Dorns have been long-time amateur native plant gardeners in eastern Wyoming. Their 30 plus years of experience growing Rocky Mountain native plants, coupled with their intimate knowledge of the regional flora, is captured in this new book.

Unlike many other native gardening books on the market, *Growing Native Plants of the Rocky Mountain Area* is geared specifically for the demanding growing conditions of the Rocky Mountain states (defined by the Dorns as all of Montana, Idaho, Wyoming, Utah, and Colorado, the NE corner of Nevada, northern New Mexico, and the western quarter of the Dakotas and Nebraska). Dorn and Dorn have recognized that the conventional USDA hardiness zone criteria (based on the average lowest winter temperature of an area) are inadequate in predicting how well many native and non-native plants will adjust to the Rocky Mountain climate where temperature extremes (as great as 140 degrees F between summer highs to winter lows) truly dictate which plants will persist. In place of the familiar USDA system, the Dorns have developed a more appropriate, ecologically-based system for classifying the 9 major plant regions of the Rocky Mountains. Each plant region has a characteristic flora shaped by differences in soils, topography, and the timing and quantity of precipitation. By recognizing the needs of a particular species according to its plant region preferences, the home gardener has a better chance of identifying plants that will be suited for their particular garden. Homeowners can also make better decisions about what specific microsites are best suited for a particular plant (such as warm, south-facing slopes for drought-hardy species), or whether they will need to ameliorate their growing conditions through seasonal irrigation or soil treatments. For example, New Mexico locust (*Robinia neomexicana*), a common flowering shrub from the Southern Mountains Region of south-central

Colorado, the Utah High Plateaus, and northern New Mexico, is adapted to the high summer precipitation of this region, and thus may not thrive in otherwise similar mountainous areas that lack a monsoon unless supplemental moisture is provided. This kind of Rocky Mountain-specific gardening information is often lacking in other guides that are geared for more general, widespread audiences, or assume everyone has great loamy soil, adequate water, and plenty of frost free days (ok for California maybe, but not perhaps for Laramie, or Rock Springs, or where you actually live).



The introductory chapters describe specific environmental factors affecting plant distribution and survival (such as soils, moisture availability, topography, light, temperature, and snow cover), how these factors affect how a garden should be laid out to mimic natural habitats, how to treat weeds, plant pests, and how to attract birds. Scattered among these chapters are seven "principles" that pithily summarize the take-home lessons of gardening with native plants in the Rockies. These principles all seem straight-forward (e.g. principle 5: "the major enemies of plant seedlings are not enough water, too much water, molds, animal consumers, and competition from other plants"), but all provide a succinct summary of the typical errors novice gardeners make when trying to grow new plants. There are books that go into greater detail on all of these topics, but the Dorns have done a nice job of condensing these concepts into one easy to comprehend reference appropriate to our local conditions.

Most of *Growing Native Plants* is devoted to a full color section describing over 400 native tree, shrub, grass, and wildflower species suited for garden use in the Rocky Mountain region. The species accounts include information on which of the nine regions of the Rockies the plant is best suited for, along with a brief description of its growth habit and appearance, habitat, cultivation, and means for propagation. The photos accompanying the descriptions are of high quality and large size (one of my pet peeves with many horticulture books is how tiny and grainy the photos are) and show just how beautiful our native plants can be. For those who are not swayed by appeals to reduce global homogenization, save water, or reduce demands for fertilizer, the photos alone are perhaps the best promotion for going native.

Plant descriptions are arranged alphabetically by scientific name. This may prove a challenge for those who are squeamish about taxonomic names (especially since the nomenclature follows more recent treatments and use some unfamiliar names for asters, ricegrass, and others). Fortunately the index is cross-referenced by widely used common names and taxonomic synonyms. Besides, if a gardener can learn to recognize "common" names like Chrysanthemum, Forsythia, and Geranium (all Latin genus names too), they can expand their vocabulary with a few more native scientific names! The book concludes with several appendices depicting sample precipitation tables, examples of designing plant beds, and tables comparing various attributes of the species described previously.

Growing Native Plants of the Rocky Mountain Area is currently available in printed form for conventional bibliophiles, or as a cd-rom using Microsoft Word for the techno-savvy or bargain-hunter, requiring Adobe Acrobat to read. Me, I'll stick with the printed version and read it in the comfort of a hammock and enjoy the solitude of being away from the computer while I'm planning for my native garden-in-progress. WF

Note: For a limited time, individuals interested in purchasing the book version of Growing Natives can do so directly from the Dorns for \$50 (postage included) through Mountain West Environmental Services (contact Bob Dorn at linglebird@yahoo.com for details).

Wyoming's New Seed Law

By Richard Dunne

Significant changes in our seed law were passed by the Wyoming legislature this year (HB123), which address weeds, the seed lab, and regulatory process. Recognizing the need for a more dynamic and species-flexible law, the Society of Range Management, Wyoming Crop Improvement Association, Weed and Pest Council and Department of Agriculture undertook a revision of existing law.

Before the new law, all noxious weeds were set by statute into three categories: "prohibited noxious" (zero tolerance), "restricted noxious" (45 seeds per pound) and "other weeds" (2%). Technically, each species had to be voted onto the weed list by the legislature, though the Department of Agriculture had found a round-about way to add weeds. Now, new weeds will be added to the list through a review process utilizing the Dept. of Agriculture, the State Seed Analyst and the Seed Lab Advisory Group through regulation rather than statute.

Arising out of the desire to control the unintentional planting of cheat grass, (*Bromus tectorum*), we have added a new category: "Regulated Weeds". Before this law, cheat grass was allowed at 2%, which roughly translates to 4800 seeds per pound as a contaminant in all seed sold in Wyoming. Recognizing that existing categories were either too lenient to slow the spread of cheat grass or too strict beyond the capability of the seed industry, the legislature created a fourth category labeled as "Regulated Weeds" in which specific tolerance can be set for individual problem species. The current consensus is that all of the weedy annual bromes will be listed as "Regulated Weeds" and capped at 1200 seeds per pound (0.5%), which is a fourfold reduction compared to the previous law. As seed production technology advances we hope to lower this limit.

Other changes that may affect land managers are the increase of secondary noxious weed caps from 45 to 50 seeds per pound. This was done because just one seed found in a lab sample could quarantine a seed lot, where now it

will take at least two seeds in a sample.



Above: *Bromus tectorum*, from Hitchcock, A.S. (rev. A. Chase). 1950. *Manual of the Grasses of the United States*. USDA Misc. Publ. No. 200. Washington, DC. 1950. as posted electronically on the USDA-NRCS PLANTS Database..

As with all good laws, the devil is in the details and regulatory rules are now being drawn for the Department of Agriculture to administer. So far the process has been professional and comprehensive.

Expect a large number of new weeds to show up as Prohibited Noxious Weeds in the near future. Our philosophy is to head off problems by aggressively listing weeds that have proven themselves very troublesome in surrounding states. Criteria for designation will include such qualities as competitiveness against natives, economic loss to crops or livestock, difficulty of control, allelopathic or competitive attributes and others. We must be very careful to establish reasonable and compelling criteria for inclusion of weeds onto these lists lest they become a political football.

A full copy of the new law may be viewed at the website of the Wyoming State Legislature: <http://legisweb.state.wy.us/2007/bills.htm> RD

In addition, the use of a tetrazolium test (TZ) is now legally used in species for which no germination rules have been established by the Association of Seed Analysts. TZs for species in which rules of germination have been established may be still be used with consent between buyer and seller. TZs have been common in Wyoming where time does not allow for a slow germination. This law now recognizes for the first time the legitimate use of TZs.

Russian Olive Removed from Wyoming Nursery Trade

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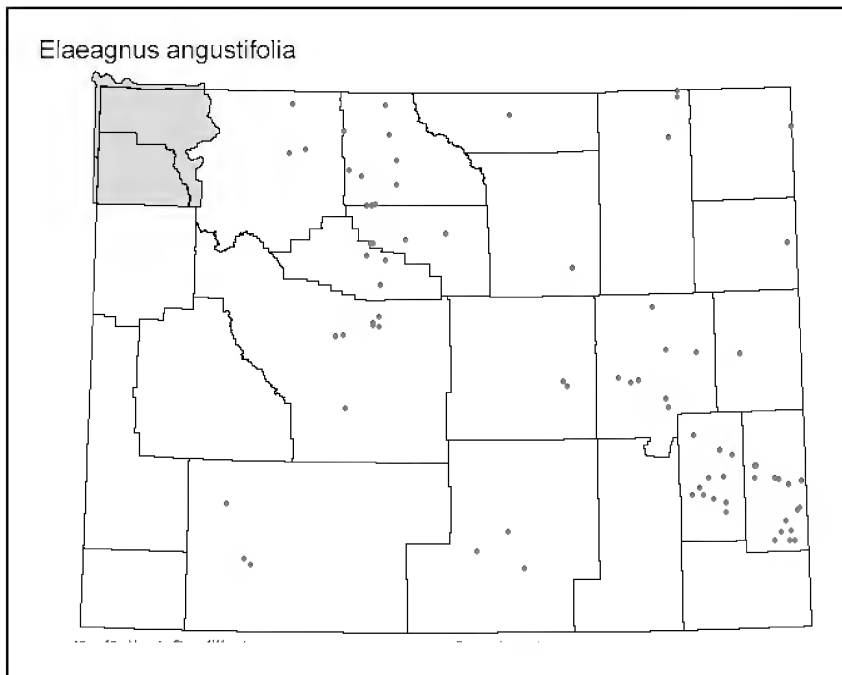
On February 12, 2007, Russian olive (*Elaeagnus angustifolia*) was added to the state designated weed list on February 12, 2007 (posted at: [//www.wyoweed.org/docs/designated\\_weeds\\_pests.html](http://www.wyoweed.org/docs/designated_weeds_pests.html)). The Wyoming Board of Agriculture unanimously approved the resolution initiated by the Wyoming Weed and Pest Council. By adding Russian olive to the list, it restricts the sale, distribution and transportation of the tree into the state.

"Weed and Pest districts have become increasingly aware of the impacts Russian olive presents along riparian corridors" stated Doug Vickery, president of the Wyoming Weed and Pest Council. "The Weed and Pest Council's intent is not to start cutting down desired windbreaks, shelterbelts or ornamental trees, but to focus our attention on areas where it has escaped cultivation" he added. The concerted efforts to control salt cedar (*Tamarisk chinensis*) and the overlapping invasions of salt cedar and Russian olive in the Bighorn Basin are also factors in the decision to include the latter.

Designation of Russian olive on the state weed list culminates a long-standing debate among Wyoming biologists. "Stop the Russian Olive Invasion!" the *Castilleja* headline ran in 1995 (Vol. 14, No. 4), reprinting a Colorado brochure that was getting attention across the West. In the following issue, Robert Dorn, author of "Vascular Plants of Wyoming" and co-author of "Wyoming Birds" addressed the appropriateness, effectiveness and potential impacts of large-scale Russian olive control efforts in the state (Vol. 15, No. 1), suggesting that time, money and philosophical debate could be far better spent.

Russian olive is a non-native tree of southern Europe, central and eastern Asia that can out-compete native vegetation, interfere with natural plant succession by forming dense, self-replicating stands, interfere with nutrient cycling by fixing nitrogen and producing nitrogen-rich litter, and tax water reserves, similar to the problems presented by salt cedar (*Tamarisk chinensis*). The addition of Russian olive to the Wyoming

designated weed list restricts the sale, distribution and transportation of this tree into the state, according to the Wyoming Department of Agriculture Press Release. For further reading, the most recent literature review on Russian olive is presented in: Katz, G.L. and P.B. Shafroth. 2003. Biology, ecology and management of *Elaeagnus angustifolia* L. (Russian olive) in western North America. *Wetlands* 23(4):763-777. BH



Left: Distribution of *Elaeagnus angustifolia*, from "Atlas of the Vascular Flora of Wyoming", Hartman and Nelson 1998. © 1998, University of Wyoming, Rocky Mountain Herbarium. Posted electronically at: <http://www.rmh.uwyo.edu/>

## Is Spring Here Yet?

This spring, people across the country will join in collecting valuable data on the timing of leafing and flowering of trees and other plants through Project BudBurst<sup>1</sup>! This national citizen science field campaign targets native tree and flower species across the country. By recording the timing of the leaf emergence and flowering of native species each year, scientists can learn about the prevailing climatic characteristics in a region over time. With your help, valuable environmental information can be compared to historical records to evaluate climate conditions.

Project BudBurst is ideal for teachers and students, families interested in participating in a science project, scouts and 4-H groups, gardening clubs, ... anyone with an interest in contributing to this study. If you already do bird counts, you know the idea! You'll find all the information you need to participate in Project BudBurst at [www.budburst.org](http://www.budburst.org). (Project Budburst is a collaborative effort of the Chicago Botanic Garden, ESRI, National Science Foundation, National Phenology Network, and universities.)

**Wyoming Native Plant Society**  
P.O. Box 2500  
Laramie, WY 82073

**The Wyoming Native Plant Society** is a non-profit organization established in 1981, dedicated to encouraging the appreciation and conservation of the native flora and plant communities of Wyoming. The Society promotes education and research on native plants of the state through its newsletter, field trips, and annual student scholarship award. Membership is open to individuals, families, or organizations. To join or renew, return this form to:

Wyoming Native Plant Society  
P.O. Box 2500, Laramie, WY 82073

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Email: \_\_\_\_\_

\$7.50 Regular Membership  
 \$15.00 Scholarship Supporting Member  
(\$7.50 goes to the Markow Scholarship Fund)

Check one:

New member  
 Renewing member

Renewing members, check here if this is an address change.