REDWOODS, HEMLOCKS OTHER CONE-BEARING PLANTS pdf

1: Picea glauca var. albertiana â€˜Conicaâ€™ (Dwarf Alberta Spruce)

*Redwoods, Hemlocks & Other Cone-Bearing Plants (Kingdom Classification) [Steve Parker] on www.enganchecubano.com *FREE* shipping on qualifying offers. This book introduces you to an interesting group of plants, from the mighty redwoods to the sharp-needled spruces.*

Though the coast redwood is not affected severely by any sort of diseases, recent studies show the pathogen Phytophthora ramorum, or Sudden Oak Death , is now known to have an effect on Sequoia sempervirens, along with more than three dozen other plant species in California. Luckily though, there is still no evidence that mature redwoods are harmed by the pathogen. Phytophthora ramorum is a parasitic water mold that has a wide range of hosts among native California plants. Even if redwood seedlings and sprouts are affected, the possibility that mature redwoods could show resistance to infection still remains. Even if further research specifies that redwoods are not significantly affected by Sudden Oak Death, the disease still creates a major threat to the ecosystem of the coast redwood. The most vulnerable species, tanoak, is a very common tree in the southern range of the redwood forest that several animals depend on for food and shelter. The death of these trees could potentially put the forest at risk through loss of food and habitat, and thus could raise the total amount of combustible material in the area, resulting in more severe fires that could kill larger redwoods and Douglas firs. As mentioned in the earlier section, Adaptations , redwoods have no insects that cause serious damage. However, several insects are found living on the redwood. These include a flatheaded twig borer and girdler, two redwood bark beetles, and the sequoia pitch moth. When growing with other species of trees, redwoods are usually the dominant tree. Although this is true, it is generally mixed with other conifers and broad-leaf trees. Douglas fir can occupy dominant and co-dominant positions along with the redwood, competing with them for height. Common species of trees on the coastal side of the redwoods include grand fir, western hemlock, and Sitka spruce. The Sitka spruce outcompete the redwoods in these areas because they are able to endure salty conditions. These trees assist the redwoods by shielding them from salt and wind. Other conifers found mixed with the redwoods include Gowen cypress and various species of pine. The two most common hardwoods in the redwood areas are tanoak and Pacific madrone. The tanoak grows far beneath the towering redwoods, where its seedlings can tolerate shade better than redwoods. In addition, their acorns establish themselves on the forest floor more efficiently than the seeds of most trees. Other hardwoods found with redwood are vine maple, bigleaf maple, red alder, giant chinkapin, Oregon ash, Pacific bayberry, Oregon white oak, cascara buckthorn, willows, and California-laurel. The most common species of lesser vegetation found in association with the coast redwood are bracken, sword fern, azalea, California huckleberry, Pacific rhododendron, salmonberry, coyote-brush, and snowbrush. The redwoods provide protection and shelter for these plants and various others. The redwoods offer shelter to many animals as well such as birds like the spotted owl and the marbled murrelet, both of which nest almost exclusively in old-growth redwood and Douglas fir forests. Two species of threatened bird species that depend greatly on the bay near the coast redwoods for food include the peregrine falcon and the bald eagle. Red tree voles, relatives of mice, live almost in the very tops of the redwood trees, eating the needles. Deer ticks that carry Lyme disease also occur in the coast redwood forests. Other animals found among the coast redwoods include mammals like black bears, elk, deer, cougars , raccoons, squirrels, and martens. Wide sections of bark are torn from the tree mainly during the months of April to August. Younger, thinner trees are damaged the most by this occurrence. Click here to read more about this issue between the black bear and the coast redwoods. There are not many sightings of this vicious creature, so I was very lucky to have caught the wild beast on camera. However, the more common species one would normally find in the Redwood State Parks is Ursus americanus, generally known as the black bear B. The banana slug is also a very common organism found among coast redwoods. Banana slugs chew leaves, waste from other animals, and dead plant material, which it later recycles into soil. In addition to working well as decomposers, they also benefit the forest by spreading seeds and spores of different plants through their waste. These slugs eat everything but redwood seedlings and seeds. One common species of fungi often found growing beneath coast redwoods is Caulorhizae umbonata , also known

as the rooting redwood mushroom. Luckily, this fungus does not harm the coast redwoods in any way. More fungi associated with the coast redwood are members of the phylum Glomeromycota. Species of this phylum form mutualistic relationships between the roots of plants and fungi called mycorrhizae. The fungus benefits from this relationship by obtaining sugars from the plant, while the plant benefits by acquiring an increase in surface area to allow for greater absorption of water and nutrients. If you would like to know more about any of the following organisms that are connected to the coast redwood, just click on the website!

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2: The transparency of evil : essays on extreme phenomena - ECU Libraries Catalog

Redwoods, Hemlocks & Other Cone-Bearing Plants has 2 ratings and 1 review. CFAITC said: This guide examines various types of conifers, from the redwoods.

Mammals include raccoons, rabbits, and deer. Reaching heights of over feet, coast redwoods are the tallest trees in the world. They have a limited distribution, occurring only along the coast, between southern Oregon and central California where summer fog and moderate temperatures prevail. The bark is thick, red, fibrous, and fire resistant. Needles fall to the ground in branchlets instead of singly, as in other conifers. The heartwood is red, and the sapwood is pink. The heartwood, especially in old growth, is rot resistant. Redwoods grow a short distance away from the salt-laden breezes of the ocean on slopes, flood plains, and level sea-cut terraces. They create their own environment. Their needles collect moisture from summer fog. Tall groves, especially of old-growth trees, create deep shade. Some birds, insects, mammals and amphibians live high in the canopy where they can find the most light and food. Certain lichens found in the canopy fix nitrogen convert unusable N2 to usable N3 molecules that is essential for the plants and animals of the redwood forest. Unlike most conifers, Bishop pine Pinus muricata does not open its cones and distribute its seeds when they are mature. Instead, it releases its seeds only when its cones are exposed to intense heat. This adaptation to fire discharges seeds into a bed of fertile ash. Bishop pine grows to less than a hundred feet tall and lives only up to about 80 years. It has deeply furrowed bark and two needles to a bundle. Because most of them lose their leaves in the fall, they let in light and warmth in winter. Their size and longevity help them store more climate-altering carbon dioxide than other plants. Even old redwoods continue to grow, each year adding more carbon-filled wood than smaller, younger trees. After redwoods die, their rot-resistant wood keeps that carbon out of the atmosphere for a long time. Could redwoods be harmed by climate change? Using study sites at Russian Gulch and Jackson Demonstration State Forest, Russell found that negative effects of logging near streams were lessened in places where 1 forests have been given a long rest from logging, as in the state park, and 2 loggers left wider buffer strips between the waterways and logging.

REDWOODS, HEMLOCKS OTHER CONE-BEARING PLANTS pdf

3: Redwoods, Hemlocks & Other Cone-Bearing Plants (Kingdom Classification) - Video Dailymotion

Redwoods, hemlocks & other cone-bearing plants. [Steve Parker] -- This book introduces you to an interesting group of plants, from the mighty redwoods to the sharp needled spruces. It examines the various types of conifers, their reproductive methods, and how they.

However, Yang and colleagues in queried the polyploid state of the redwood and speculate that it may have arisen as an ancient hybrid between ancestors of the giant sequoia and dawn redwood Metasequoia. Further analysis strongly supported the hypothesis that Sequoia was the result of a hybridization event involving Metasequoia and Sequoiadendron. Thus, Yang and colleagues hypothesize that the inconsistent relationships among Metasequoia, Sequoia, and Sequoiadendron could be a sign of reticulate evolution in which two species hybridize and give rise to a third among the three genera. However, the long evolutionary history of the three genera the earliest fossil remains being from the Jurassic make resolving the specifics of when and how Sequoia originated once and for all a difficult matterâ€”especially since it in part depends on an incomplete fossil record. The root system is composed of shallow, wide-spreading lateral roots. They are dark green above and have two blue-white stomatal bands below. Leaf arrangement is spiral, but the larger shade leaves are twisted at the base to lie in a flat plane for maximum light capture. The species is monoecious , with pollen and seed cones on the same plant. The seeds are released when the cone scales dry out and open at maturity. The tallest and oldest trees are found in deep valleys and gullies, where year-round streams can flow, and fog drip is regular. In addition, Douglas fir , pine , and tanoak often crowd out redwoods at these elevations. Few redwoods grow close to the ocean, due to intense salt spray, sand, and wind. The prehistoric fossil range of the genus is considerably greater, with a subcosmopolitan distribution including Europe and Asia until about 5 million years ago. During the last ice age , perhaps as recently as 10, years ago, redwood trees grew as far south as the Los Angeles area coast redwood bark found in subway excavations and at La Brea tar pits. Cool coastal air and fog drip keep this forest consistently damp year round. Several factors, including the heavy rainfall, create a soil with fewer nutrients than the trees need, causing them to depend heavily on the entire biotic community of the forest, especially complete recycling of the trees when dead. This forest community includes coast Douglas fir , Pacific madrone , tanoak , western hemlock , and other trees, along with a wide variety of ferns , mosses , mushrooms , and redwood sorrel. Redwood forests provide habitat for a variety of amphibians, birds, mammals, and reptiles. Old-growth redwood stands provide habitat for the federally threatened spotted owl and the California-endangered marbled murrelet. Coast redwoods are resistant to insect attack, fungal infection, and rot. These properties are conferred by concentrations of terpenoids and tannic acid in redwood leaves, roots, bark, and wood. The numerous claims of older redwoods are incorrect. Redwoods must endure various environmental disturbances to attain such great ages. In response to forest fires, the trees have developed various adaptations. The thick, fibrous bark of coast redwoods is extremely fire-resistant; it grows to at least a foot thick and protects mature trees from fire damage. Burned areas are favorable to the successful germination of redwood seeds. Sediment deposits can form impermeable barriers that suffocate tree roots, and unstable soil in flooded areas often causes trees to lean to one side, increasing the risk of the wind toppling them. Immediately after a flood, redwoods grow their existing roots upwards into recently deposited sediment layers. Fog water is absorbed through multiple pathways. Leaves directly take in fog from the surrounding air through the epidermal tissue , bypassing the xylem. Seed production begins at 10â€”15 years of age. Cones develop in the winter and mature by fall. In the early stages, the cones look like flowers , and are commonly called "flowers" by professional foresters, although this is not strictly correct. Coast redwoods produce many cones, with redwoods in new forests producing thousands per year. Successful germination often requires a fire or flood, reducing competition for seedlings. The winged seeds are small and light, weighing 3. Seedlings are susceptible to fungal infection and predation by banana slugs , bush rabbits , and nematodes. Coast redwoods can also reproduce asexually by layering or sprouting from the root crown, stump, or even fallen branches; if a tree falls over, it generates a row of new trees along the trunk, so many trees naturally grow in a straight line. Sprouts originate from dormant or adventitious buds

at or under the surface of the bark. The dormant sprouts are stimulated when the main adult stem gets damaged or starts to die. Many sprouts spontaneously erupt and develop around the circumference of the tree trunk. Within a short period after sprouting, each sprout develops its own root system, with the dominant sprouts forming a ring of trees around the parent root crown or stump. This ring of trees is called a "fairy ring". Sprouts can achieve heights of 2. Redwoods may also reproduce using burls. Coast redwoods develop burls as seedlings from the axils of their cotyledon , a trait that is extremely rare in conifers. Burls are also capable of sprouting into new trees when detached from the parent tree, though exactly how this happens is yet to be studied. Shoot clones commonly sprout from burls and are often turned into decorative hedges when found in suburbia. Cultivation and uses[edit] An example of a bonsai redwood, from the Pacific Bonsai Museum The Skyline-to-the-Sea Trail passing through a fallen California redwood tree Coast redwood is one of the most valuable timber species in the lumbering industry. Coast redwood lumber is highly valued for its beauty, light weight, and resistance to decay. Its lack of resin makes it resistant to fire. Shaughnessy, Chief Engineer of the San Francisco Fire Department wrote, In the recent great fire of San Francisco, that began April 18th, , we succeeded in finally stopping it in nearly all directions where the unburned buildings were almost entirely of frame construction, and if the exterior finish of these buildings had not been of redwood lumber, I am satisfied that the area of the burned district would have been greatly extended. Because of its impressive resistance to decay, redwood was extensively used for railroad ties and trestles throughout California. Many of the old ties have been recycled for use in gardens as borders, steps, house beams, etc. Redwood burls are used in the production of table tops, veneers, and turned goods. The Yurok people, who occupied the region before European settlement, regularly burned off ground cover in redwood forests to bolster tanoak populations from which they harvested acorns, to maintain forest openings, and to boost populations of useful plant species such as those for medicine or basketmaking. The trees were felled by ax and saw onto beds of tree limbs and shrubs to cushion their fall. The repeated fires favored secondary forests of primarily redwoods as redwood seedlings sprout readily in burned areas. Clearcutting involved felling all the trees in a particular area. It also does well in the Pacific Northwest Oregon, Washington, and British Columbia , far north of its northernmost native range in southwestern Oregon. The current tallest tree is the Hyperion tree , measuring Until it fell in March , the "Dyerville Giant" was the record holder. This fallen giant has been preserved in the park. Numerous historic reports exist of Redwood trees to feet high, a tree reportedly feet While similar mutations occur sporadically in other conifers, no cases are known of such individuals surviving to maturity in any other conifer species.

4: Plants That Have Cones | Garden Guides

cone-bearing seed www.enganchecubano.com cone-bearing seed plants. There is one living species, Ginkgo biloba, that is widely used as an ornamental plant but is Get Price.

Awl-like leaves of Cook Pine Araucaria columnaris In Abies grandis grand fir , and many other species with spirally arranged leaves, leaf bases are twisted to flatten their arrangement and maximize light capture. Some, notably Agathis in Araucariaceae and Nageia in Podocarpaceae, have broad, flat strap-shaped leaves. Others such as Araucaria columnaris have leaves that are awl-shaped. In many species with spirally arranged leaves, such as Abies grandis pictured , the leaf bases are twisted to present the leaves in a very flat plane for maximum light capture. Apache Pine, Pinus engelmannii. The stomata are in lines or patches on the leaves, and can be closed when it is very dry or cold. The leaves are often dark green in colour, which may help absorb a maximum of energy from weak sunshine at high latitudes or under forest canopy shade. Conifers from hotter areas with high sunlight levels e. Turkish Pine Pinus brutia often have yellower-green leaves, while others e. In the great majority of genera the leaves are evergreen , usually remaining on the plant for several 2â€”40 years before falling, but five genera Larix , Pseudolarix , Glyptostrobus , Metasequoia and Taxodium are deciduous , shedding the leaves in autumn and leafless through the winter. Tree ring structure[edit] The internal structure of conifer Tree rings are records of the influence of environmental conditions, their anatomical characteristics record growth rate changes produced by these changing conditions. The microscopic structure of conifer wood consists of two types of cells: The tracheids of earlywood formed at the beginning of a growing season have large radial sizes and smaller, thinner cell walls. Then, the first tracheids of the transition zone are formed, where the radial size of cells and thickness of their cell walls changes considerably. Finally, the latewood tracheids are formed, with small radial sizes and greater cell wall thickness. This is the basic pattern of the internal cel structure of conifer tree rings. Conifer cone Most conifers are monoecious , but some are subdioecious or dioecious ; all are wind-pollinated. Conifer seeds develop inside a protective cone called a strobilus. In Pinaceae , Araucariaceae , Sciadopityaceae and most Cupressaceae , the cones are woody , and when mature the scales usually spread open allowing the seeds to fall out and be dispersed by the wind. Ripe cones may remain on the plant for a varied amount of time before falling to the ground; in some fire-adapted pines, the seeds may be stored in closed cones for up to 60â€”80 years, being released only when a fire kills the parent tree. In the families Podocarpaceae , Cephalotaxaceae , Taxaceae , and one Cupressaceae genus Juniperus , the scales are soft, fleshy, sweet and brightly colored, and are eaten by fruit-eating birds, which then pass the seeds in their droppings. These fleshy scales are except in Juniperus known as arils. In some of these conifers e. Taxaceae , the cone is reduced to just one seed scale or e. Cephalotaxaceae the several scales of a cone develop into individual arils, giving the appearance of a cluster of berries. The male cones have structures called microsporangia that produce yellowish pollen through meiosis. Pollen is released and carried by the wind to female cones. Pollen grains from living pinophyte species produce pollen tubes, much like those of angiosperms. The gymnosperm male gametophytes pollen grains are carried by wind to a female cone and are drawn into a tiny opening on the ovule called the micropyle. It is within the ovule that pollen-germination occurs. From here, a pollen tube seeks out the female gametophyte, which contains archegonia each with an egg, and if successful, fertilization occurs. The resulting zygote develops into an embryo , which along with the female gametophyte nutritional material for the growing embryo and its surrounding integument, becomes a seed. Eventually the seed may fall to the ground and, if conditions permit, grow into a new plant. In forestry , the terminology of flowering plants has commonly though inaccurately been applied to cone-bearing trees as well. The male cone and unfertilized female cone are called male flower and female flower, respectively. After fertilization, the female cone is termed fruit, which undergoes ripening maturation. It was found recently that the pollen of conifers transfers the mitochondrial organelles to the embryo , a sort of meiotic drive that perhaps explains why Pinus and other conifers are so productive, and perhaps also has bearing on observed? These spores develop on separate male and female sporophylls on separate male and female cones. In the male cones, microspores are produced from

microsporocytes by meiosis. The microspores develop into pollen grains, which are male gametophytes. Large amounts of pollen are released and carried by the wind. Some pollen grains will land on a female cone for pollination. The generative cell in the pollen grain divides into two haploid sperm cells by mitosis leading to the development of the pollen tube. At fertilization, one of the sperm cells unites its haploid nucleus with the haploid nucleus of an egg cell. The female cone develops two ovule, each of which contains haploid haploid megaspores. A megasporocyte is divided by meiosis in each ovule. Each winged pollen grain is a four celled male gametophyte Three of the four cells break down leaving only a single surviving cell which will develop into a female multicellular gametophyte. The female gametophytes grow to produce two or more archegonia , each of which contains an egg. Upon fertilization, the diploid egg will give rise to the embryo, and a seed is produced. The female cone then opens, releasing the seeds which grow to a young seedling. To fertilize the ovum, the male cone releases pollen that is carried on the wind to the female cone. Male and female cones usually occur on the same plant. The pollen fertilizes the female gamete located in the female cone. Fertilization in some species does not occur until 15 months after pollination. A seed develops which contains the embryo. The seed also contains the integument cells surrounding the embryo. This is an evolutionary characteristic of the Spermatophyta. Mature seed drops out of cone onto the ground. Seed germinates and seedling grows into a mature plant. When the plant is mature, it produces cones and the cycle continues. Female reproductive cycles[edit] Conifer reproduction is synchronous with seasonal changes in temperate zones. Reproductive development slows to a halt during each winter season, and then resumes each spring. The male strobilus development is completed in a single year. Conifers are classified by three reproductive cycles, namely; 1-, 2-, or The cycles refers to the completion of female strobilus development from initiation to seed maturation. All three types or reproductive cycles have a long gap in between pollination and fertilization. One year reproductive cycle: Female strobili are initiated in late summer or fall in a year, then they overwinter. Female strobili emerge followed by pollination in the following spring. Fertilization takes place in summer of the following year, only 3â€”4 months after pollination. Cones mature and seeds are then shed by the end of that same year. Pollination and fertilization occurs in a single growing season. The genera includes Widdringtonia , Sequoiadendron Cupressaceae and most species of Pinus. Female strobilus initials are formed in late summer or fall then overwinter. It emerges and receives pollen in the first year spring and become conelets. The conelet goes through another winter rest and in the spring of the 2nd year. The Archegonia form in the conelet and fertilization of the archegonia occurs by early summer of the 2nd year, so the pollination-fertilization interval exceeds a year. After fertilization, the conelet is considered an immature cone. Maturation occurs by autumn of the 2nd year, at which time seeds are shed. In summary, the 1-year and the 2-year cycles differ mainly in the duration of the pollination- fertilization interval. Three of the conifer species are pine species Pinus pinea , Pinus leiophylla , Pinus torreyana which have pollination and fertilization events separated by a 2-year interval. Female strobili initiated during late summer or autumn in a year, then overwinter until the following spring. Female strobili emerge then pollination occurs in spring of the 2nd year then the pollinated strobili become conelets in same year i. The female gametophytes in the conelet develop so slowly that the megaspore does not go through free-nuclear divisions until autumn of the 3rd year. The conelet then overwinters again in the free-nuclear female gametophyte stage. Fertilization takes place by early summer of the 4th year and seeds mature in the cones by autumn of the 4th year. Fraser recorded the development of a single white spruce tree from to Apical growth of the stem was slow from through when the tree was competing with herbs and shrubs and probably shaded by larger trees. Lateral branches began to show reduced growth and some were no longer in evidence on the year-old tree. Apical growth totalling about m, m, m, m, m, m, and m was made by the tree in the years through , respectively. The total number of needles of all ages present on the year-old tree in was 5. In , needles as old as 13 years remained on the tree. In discussing the data obtained from the one 11 m tall white spruce, Fraser et al. On this basis, one needle produced food for about 0. The order of priority of photosynthate distribution is probably: In the white spruce studied by Fraser et al. Undoubtedly, the proportions change with time. Seed dispersal mechanism[edit] Wind and animals dispersals are two major mechanisms involved in the dispersal of conifer seeds. Wind bore seed dispersal involves two processes, namely; local neighborhood dispersal LND and long-

distance dispersal LDD.

5: Redwoods, Hemlocks & Other Cone-Bearing Plants : Steve Parker :

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6: Interactions of coast redwood with other species

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