

Saving Forests From Insects



INSECT CONTROL, OUTFIT

IMPORTANT results have been obtained in investigations of insects affecting forest resources, according to the annual report of the chief of the bureau of entomology, United States department of agriculture.

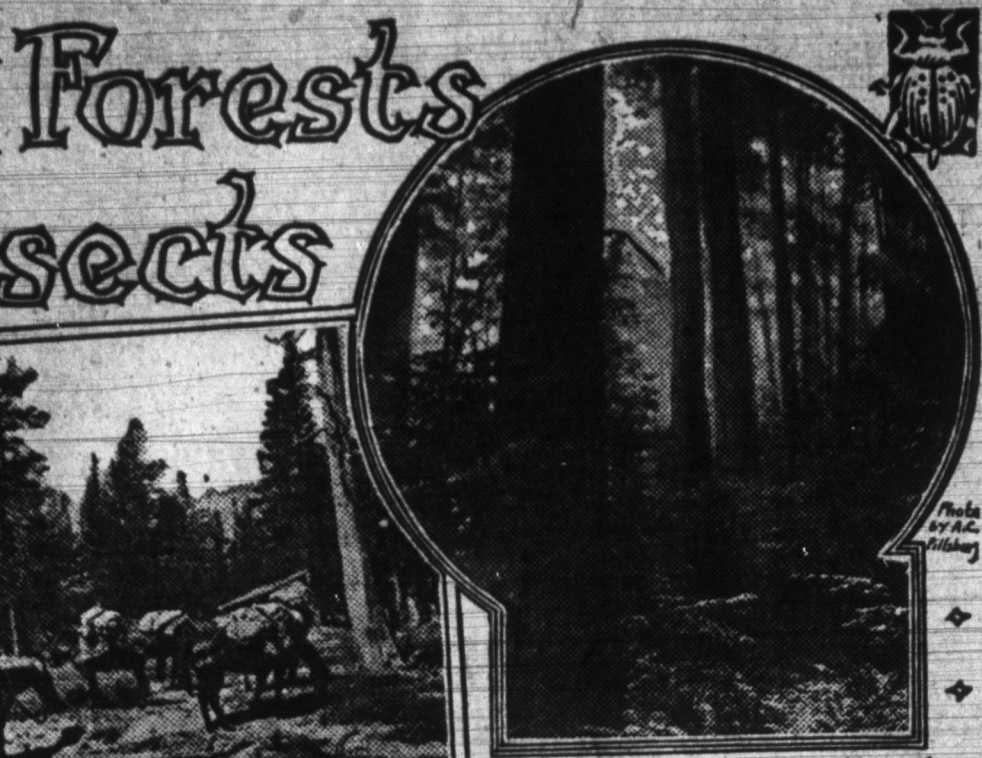
The report says of western field work: "An special investigation of the insect damage to crude spruce products for airplane stock in the states of Washington and Oregon showed that the greater part if not all of the damage could be prevented by proper methods of logging and production, with little or no additional cost."

"Exhaustive studies of insect infestation and control were continued in the Sequoia and Yosemite national parks. Much new information has been gained, and the methods of gathering and compiling field data have been standardized."

"A special study was completed on the interrelation of forest fires and insects on an area of about 2,000 acres in southern Oregon. This area has been under observation since 1914, and the fire had burned over about 800 acres in 1918. The records show that previous to the fire the insects had killed 485,000 board feet of timber. The fire killed 170,000 feet, and subsequently the slightly fire-injured as well as the uninjured trees in the burned area were killed by beetles, which were attracted from the surrounding areas. It was noticed that the infestation in the burned area increased more than 1,000 per cent, but it was found that the infestation in the surrounding areas decreased. It was also found that the broods of the beetles in the fire-scorched trees failed to develop to much beyond the original number that attacked the trees. So the fire did not contribute to an increase of the beetles in general area or to the starting or extension of an epidemic of beetles. This result is of extreme interest and hardly to be expected."

"The most careful study ever made of the history of an epidemic infestation of tree-killing beetles was completed and a report submitted during the year. In the Rogue river area in about 48,000 acres near Ashland, Ore., the western pine beetle in 1914 caused the death of 346,000 board feet of pine timber. In 1915, 1,615,000 board feet were killed; 1,883,000 feet in 1916, and 608,000 in 1917. A count of the young and matured stages of the beetles that developed in an average foot of bark, and also of the number of exit holes through which the beetles emerged to attack other trees, showed that there was a notable decrease in numbers during the development of the broods each year in the infested trees on account of the increase of natural enemies and other disturbing factors. This helps explain why these beetle epidemics rise and fall within a limited period of years, and it explains how the western forests of yellow pine are naturally protected from total destruction. These facts are especially significant in connection with the application of the percentage principle of control, as by aiding the natural forces which work against the abnormal increase and epidemic shows the importance of prompt recognition and prompt treatment of a threatened outbreak in order to prevent the great loss of timber which would occur before natural control became operative."

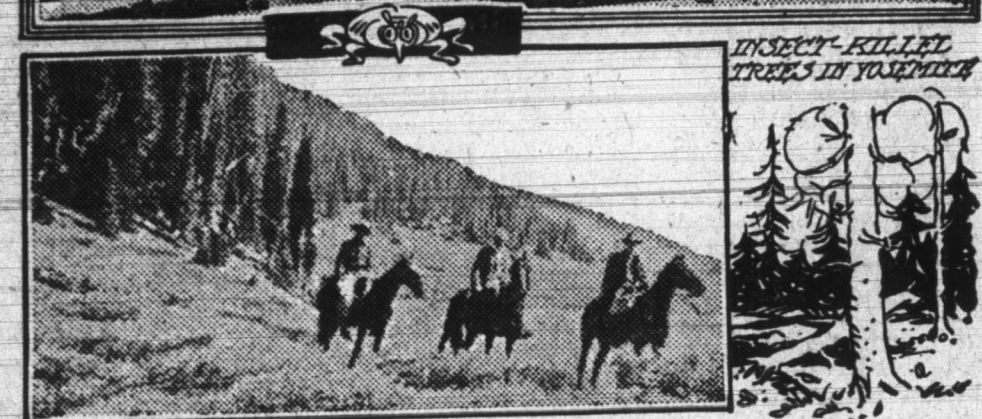
"Another special study was made of the number of all stages of the western pine beetle in 330 square feet of infested bark selected from 67 trees, which represented an average infestation within an area of approximately 36 square miles. It was shown that there is a large percentage of mortality between the young and matured stages in the developing broods, but that normally an average of about 170 beetles to the square foot of bark developed to the adult, or reproductive stage, which would be 50,000 beetles



SEQUOIA NATIONAL PARK, YOSEMITE



INSECT-KILLED TREES IN YOSEMITE



ROCKY MOUNTAIN NATIONAL PARK

to the average infested tree, or, say, 39,000 beetles to 1,000 board feet of timber. Since it requires an average of about 10 beetles to the square foot to attack and kill a vigorous, healthy tree, it will be seen that all the pine timber of the western forests would soon be destroyed were it not for natural and artificial control.

"Experiments to determine the time of year to cut and the methods of handling mesquite for fuel, posts, etc., to avoid destruction by wood-boring insects, have been nearly completed, and the results show that serious loss in the Southwest can be prevented by cutting the trees in the late fall and early winter and piling the wood in loose piles until it is thoroughly dry. Damage to posts can be prevented by cutting them at any time and laying them on the ground where they will receive the full force of the sun, turning them occasionally so that the young stages of the borers will be killed by the heat."

"Studies of damage to lead telephone cables in California by a wood-boring beetle have been continued, and the results so far show that the beetle is able to penetrate alloyed substances that are considerably harder than lead. The problem is still unsolved, and it will be difficult to find a practical means of controlling this pest, which is able to put hundreds of telephones out of commission by boring holes in the cables, through which the water enters, rendering the wire connection useless until the place is found and repaired."

A feature of the national parks is their magnificent forests. These forests are always in danger of insect foes. Eternal vigilance is the price of healthy forests. The work in general has hardly been begun. It will have to be put on a secure basis financially and made a regular part of national park administration.

In a park like Rocky Mountain, which has at present an annual appropriation of but \$10,000—a sum insufficient even for its protection and administration—insect control is, of course, practically neglected. The penalty will be paid later.

In Yosemite a survey of the Yellow, Sugar, and Jeffrey pine areas of the park made last spring developed the fact that these species were exceptionally free from bark beetles, against which an active control campaign has been carried for several years. The condition in the lodgepole areas is not so hopeful; in fact, it is serious. Large areas of this species have been entirely killed from the effects of the mountain-pine beetle during recent years, the worst and most recent being the almost complete destruction of the forests of the Tenaya basin.

It is of interest to note that while

the actual killing of the trees is due to the attacks of the bark beetle, the attacks of this insect are invariably preceded by attacks on the foliage by an altogether different insect, the needle miner. The latter attacks the needles of the lodgepole, first discoloring the foliage and eventually causing complete defoliation. Curiously enough these attacks, although they may continue for several years, seldom are directly responsible for their death. They do, however, sap the vitality of the trees which, so weakened, fall easy prey to the bark beetle, which follows in due course. The lodgepole stand in and around the Tuolumne Meadows is now threatened with destruction similar to that suffered by the stands in the Cathedral Creek and Tenaya Lake basins.

During the season of 1918 the western pine beetle and mountain pine beetle killed approximately 600,000 feet of merchantable yellow-pine and sugar-pine timber within the Marble Fork and Cactus Creek basins in Sequoia national park, according to records from 183 trees marked and studied by the United States bureau of entomology. A fund left over from the project in the Middle Fork of the Kaweah river (unit No. 10, which had been completed) was expended in the treatment of this infestation during the spring of 1918, but was insufficient to cover the entire area involved.

During the fiscal year 1919 the bureau of entomology carried on some work with its own resources in order to protect the area treated in 1918 and also to demonstrate and test a new method of applying the percentage of control. A method of destroying the broods of the western pine beetle without resorting to the use of fire is being developed, which, it is believed, will make possible the continuance of control work throughout the summer.

Regarding eastern work the agricultural department says, in part:

"Continued experiments with chemical substances applied to finished and crude forest products show that very few of the many substances that have been tried are effective, and, with crude products, none of them is so economical as simple and inexpensive management in logging and manufacture which will render the conditions of the bark and the wood unfavorable to attack."

"Continued studies of termite or white ant damage to the woodwork of buildings has led to the discovery that one of the most destructive species can not live if deprived of moisture in ground or foundation timbers."

"The recent appearance of the so-called seventeen-year locust, or periodical cicada, has given an opportunity for detailed study of certain points, and motion pictures have been made."

faces with pine boughs to assure good fortune, while to keep the Irish baby from harm a belt of woman's hair is placed about it, and to achieve a similar object Roumanian mothers tie red ribbons around the ankles of their offspring. In Holland garlic, salt, bread and steak are put in the cradle of the new arrival, while to protect their babies the mothers of Wales put in their cradles a pair of tongs or a knife. In Iceland, when the first tooth makes its appearance, a lamb is presented to the child, to be its "very own."

DOUGLAS REINSTATED IN NATIONAL LEAGUE

Leniency Probably Recommended by Garry Herrmann.

Erratic Giant Pitcher Restored to Good Standing Without Punishment—Giants Have One of Greatest Pitching Staffs.

Phil Douglas, the Giant pitcher, who ran out on the New York club while the 1919 race was still red hot, has been restored to good standing by the National Commission.

No fine was imposed, but notice was given that if he again leaves his club without permission punishment will follow.

Leniency probably was recommended for the big pitcher by August Herrmann, chairman of the commission, who had Douglas on his Cincinnati club for several seasons.

In his early National league career Douglas was a second "Bugs" Raymond, and despite his remarkable natural ability, both Charley Herzog, manager of the Cincinnati Reds, and Wilbert Robinson, manager of the Dodgers, were obliged to let the big fellow go because he never could be depended upon.

Three years ago, however, Douglas made an honest effort, and during the time that he played with Chicago his conduct was of the best. Shortly after coming to New York last summer, however, Douglas went on one of his old rampages. He left the Giants in



Phil Douglas.

the lurch in late August, and the club was obliged to suspend him for the season.

Douglas came to the Giants last summer in trade for Davey Robertson.

With Douglas in condition and ready to work, the Giants will start in the 1920 season with one of the greatest pitching staffs in baseball, including, as it does, Jesse Barnes, Fred Toney and Douglas, and the two clever left-handers—Art Nahr and Rube Benton. Even Cincinnati's all-star pitching staff of Eller, Ring, Reuther, Sallee, Fisher and Luque has nothing on the New York quintet.

Douglas will report to the San Antonio training camp with the other players. Phil's desertion cost him a month and a half of salary and a share of the second place money from the world's series.

DIAMOND NOTES

Left handers are nuts in the eyes of the ball player.

The Brooklyn club has six catchers on its roster at the present time.

Jake Miller, outfielder, has been released by the St. Louis Cardinals to Wichita Falls.

Joe Jackson was charged with 518 times at bat last season and he fanned only ten times.

All International league managers say their circuit will be faster than ever this season.

Jack Hendricks hopes to get Rube Bressler and Hank Schreiber for his Indianapolis team.

Connie Mack plans to build a pitching staff around Scott Perry, Jing Johnson and Naylor.

Pitcher Guy Hoffman, with St. Joseph most of last season, will be back with Kansas City this year.

The fans of Boston took the loss of Babe Ruth a great deal easier than it was thought they would.

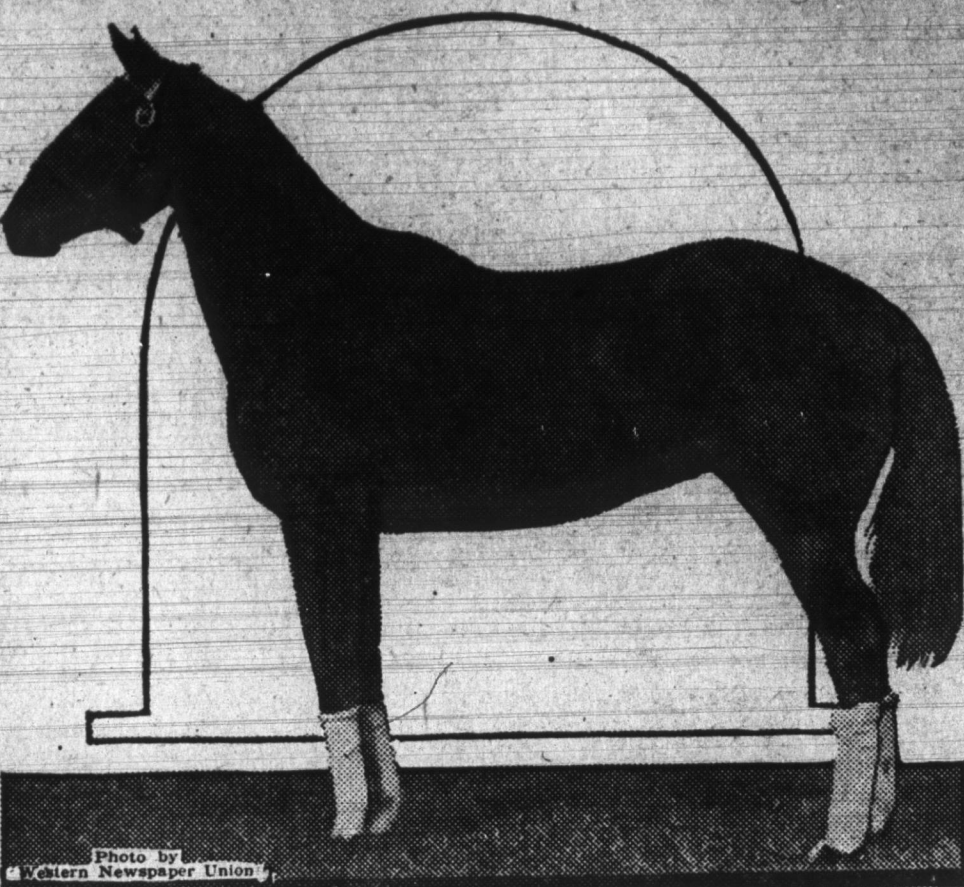
Several of the Cincinnati Reds are still unsigned, but there are a few contracts in Garry Herrmann's safe.

Bobby Quinn of the Browns, who does all their trading, is in the field for an outfielder and third baseman.

Herman Bronkie, utility man, has been released by the St. Louis Americans to the Indianapolis A. A. club.

Jim Vaughn is one of baseball's wanderers. He played in seven different leagues before landing with the Chicago Cubs.

PROPOSED TO ERECT MONUMENT TO ROAMER



Roamer, One of Greatest Race Horses in History of Turf.

Roamer was known to every follower of the sport throughout the world and in 1918 at Saratoga broke the world's record established 27 years before by the famed Salvo.

Roamer was owned by Andrew Miller, a noted figure on the turf, and publisher, and it is a strange coincidence that a few hours after Miller's death December 31st Roamer broke a leg and had to be shot. It is proposed to erect a monument at Red Bank, N. J., to the great turf idol.

GOSSIP AMONG SPORTS

The Indiana University A. A. cleared \$22,500 on football last season.

Princeton University athletes will engage in seven indoor track meets.

Princeton will have sixteen veterans of the football squad available in 1920.

Yale swimmers have reigned supreme in collegiate circles the last ten years.

Racing may be resumed in Canada next spring. Present plans include 84 racing days.

New York university has dropped wrestling as an intercollegiate sport for the season.

Queen's university, Kingston, Ont., will spend \$70,000 on a new stadium and hockey rink.

New York State American League has applied for admission into the Amateur Athletic union.

The decathlon and the 56-pound weight throw have been dropped from the Olympic games.

Amateur sports are booming in Sweden, while professional sports are given little encouragement.

Hegewisch, Ill., is out. Battling Nelson is to leave the old town flat and make his future home in California.

Jack Dempsey has been denied a hearing by the American Legion in connection with his exemption during the war.

Pal Moore is for a busy campaign and hopes to make \$50,000 in the next few months by plying his trade in the ring.

The professional billiard championship of England will start April 5 in London. Melbourne Inman, holder of the title, will not compete.

The management of the University of California baseball team has accepted June 2 to 9 as dates for games with Harvard at Cambridge.

Oxford and Cambridge may send representatives to the University of Pennsylvania relay carnival to take place at Franklin field, Philadelphia.

OFFICIAL NATIONAL LEAGUE SCHEDULE FOR SEASON OF 1920

	AT CHICAGO	AT BOSTON	AT BROOKLYN	AT NEW YORK	AT PHILADELPHIA	AT PITTSBURGH	AT CINCINNATI	AT ST. LOUIS	
CHICAGO.....	May 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, June 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, July 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Aug. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Sept. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Oct. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Nov. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Dec. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Jan. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 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