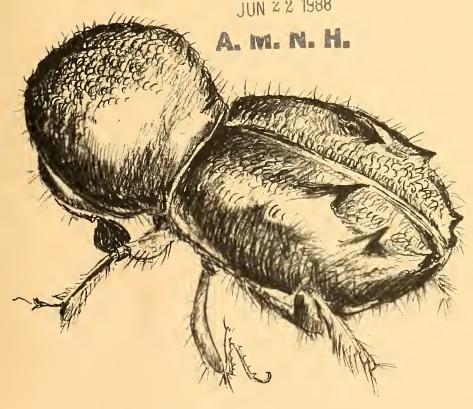
GREAT BASIN NATURALIST MEMOIRS



A Catalog of Scolytidae and Platypodidae (Coleoptera), Part 1: Bibliography

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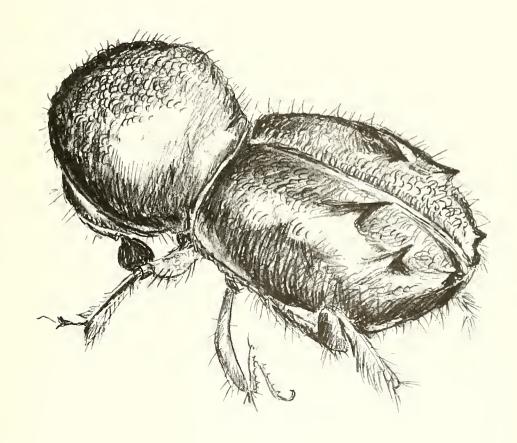
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Brigham Young University

1007



A Catalog of Scolytidae and Platypodidae (Coleoptera), Part 1: Bibliography





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A Catalog of Scolytidae and Platypodidae (Coleoptera), Part 1: Bibliography

No. 11

Brigham Young University, Provo, Utah

1987

Stephen L. Wood¹ and Donald E. Bright, Jr.²

ABSTRACT.—Presented are 21,488 references to published articles that treat the scientific study of bark and ambrosia beetles (Colcoptera: Platypodidae and Scolytidae) worldwide from 1758 to 1984 (about 200 post-1984 articles are included) in all subject areas. Each reference is accompanied by an indication of (a) whether or not the authors examined a copy of the article, and (b) the subject areas treated by the article.

Meaningful research in any aspect of science can be achieved only with a knowledge and understanding of that which is already known. Familiarity with the language of communication in the science of concern is assumed. This is as true of research in the scientific study of Scolytidae and Platypodidae, and nomenclature, its language of communication, as it is in any other field of learning.

The present study had its origin in decades of frustration that resulted from the inaccessibility of literature or of authentic specimens needed for the identification of species used in research by ourselves or our colleagues. Recent advances in the duplication and processing of information and of progressive attitudes of curators at repositories of voucher specimens on which those data are based now make it possible to access and disseminate materials and ideas not previously available to all. It was with a knowledge of the importance of past history to our present understanding of nature and the contribution these make to the future that we undertook this project. If we had understood its magnitude or the ramifications that were to result from it, we would not have started it. This work has been a nightmare of

frustration, and disappointment. Much more has been written in certain areas than we had suspected and much less has been published in others than we had assumed. It is hoped that our efforts will enable the users of this volume to more quickly and easily locate previously published information and to more thoroughly investigate the literature than might otherwise have been the case. It is because of our love for both the natural forests and the study of the beetles that devastate them that we were willing to sacrifice decades of our own private time and resources to summarize this fragment of current knowledge. In spite of its shortcomings, it is hoped that this contribution will be accepted in that spirit.

It was originally intended that this catalog would be compiled in two parts and published as one unit: (1) a taxonomically organized subject index (catalog), and (2) the bibliography on which the subject index was based. Due to the enormity of the project, to the complexities of funding, and to the uncertainties of life, we have elected to complete the bibliography first and make it available for use. The subject index (catalog) is well underway and will follow in due course of time.

Life Science Museum and Department of Zoology, Brigham Young University, Provo, Utah 84602.

² Biosystematics Research Centre, Agriculture Canada, Ottawa, Ontario, Canada K1A 0C6.

In 1982, when we formally began our bibliography of Scolytidae and Platypodidae, it was thought that the Platypodidae constituted no more than a well-marked subfamily of Scolytidae. However, research in 1983 by the senior author for a major symposium on the higher classification of Coleoptera convinced him of the validity of this family. The significance of this is that a high percentage of articles specifically cited for Scolytidae also contain citations of Platypodidae. Such articles may not be identifiable until the subject index is printed.

MATERIALS AND METHODS

This bibliography had its origin in 1946, when the senior author began a card file of taxonomic literature on Scolytidae and Platypodidae for private use in his research. A systematic search for all articles listed to 1970 was conducted in Zoological Record, Biological Abstracts, Bibliography of Agriculture, Review of Applied Entomology (Series A), and Forestry Abstracts. In addition, the bibliographies of Rudolf Kleine (1939, etc.) and Karl E. Schedl (1974) were searched. Using these sources as a base, listed articles were solicited from their authors or purchased (either original copies from used book dealers or photocopies through interlibrary loan sources) and their lists of references examined. Through this snowball method of searching, additional references were secured and the process was repeated until the sources were exhausted.

In 1981 the junior author, after struggling with similar problems outlined above, began serious consideration of a catalog of Scolytidae and Platypodidae. After consultations, the projects were combined. The senior author searched the literature from 1758 to 1970 prior to 1980 and included additional references after 1959 that were already in his files at the 1982 beginning of this project. The junior author made a systematic (computer) search of the literature from 1960 to 1984 and added additional references for the earlier period missed by the senior author. The computer search was of "BIOSIS" (Biological Abstracts) from 1970 to date, and the Commonwealth Agricultural Bureau data base from 1980 to date.

It should be noted that the references we list are those that (I) contain a key word in the

title (i.e., Scolytidae, bark beetle, etc.), (2) were cited in the references of another author, or (3) were written by an author who has published extensively on these two families. We have missed a substantial number of articles containing information about Scolytidae and Platypodidae by authors who did not include appropriate key words in their titles that could be recognized by major indexes or were not cited by other authors who did. Those articles can be found only by personal knowledge of our colleagues or by accidental encounter. Our coverage of literature that was published in the United States, Canada, and in western Europe is thought to be excellent (perhaps 95 percent complete); in northern and eastern Europe, Mexico, Central and South America, India, and Australia it is good (perhaps 70 percent); and in Asia (except India) and Africa it is poor (perhaps no more than 50 percent). It is hoped that the publication of this volume will stimulate users to carefully examine literature known to them and to send missed references to the authors for inclusion in a supplement.

We have personally examined copies of all articles listed, except those references preceded by an asterisk (*). This examination caused us to reject in excess of 10 percent of the references listed by Kleine (1939, etc.) and Schedl (1974), because they did not treat Scolytidae or Platypodidae, and to alter many others that had been incorrectly cited. This also enabled us to more precisely cite numerous articles; however, in several cases where we could not find the article in the place cited by them, we have repeated their error and stated this in the individual reference in the belief that a clerical error was made and the article will eventually be found somewhere by someone. Those references marked by an asterisk (*) are copied from our sources (cited above) and were not found or examined by us. We made no attempt to correct such references or to complete abbreviated source citations except in those cases where we were thoroughly familiar with journals containing the particular article.

A major problem was detected in the use of Kleine (1939, etc.) and Schedl (1974). A substantial portion of their references, author names, titles, and sources represent translations from the original language of the article and were not examined by us. Many of the

German language titles listed here, but published in eastern and northern European countries, fall into this category. This greatly increased the difficulty of identifying the source journal and, consequently, location of the article of concern.

A significant problem in the use of our bibliography involves author names. Languages that employ alphabets other than Roman required that names be transliterated. However, different schemes of transliteration often produced a multiplicity of Roman alphabet spellings of the same author name. To the extent that they could be recognized, we attempted to select the one most frequently used or the best known spelling rather than list the same author in many places. Related to this problem was the apparent deliberate use of several different names by the same author. To minimize this problem, we listed the full name of the author when it was available to us.

All of the staff members who assisted the authors were multilingual. Native languages included: English, German, Spanish, Mandarin, and Cantonese. Secondary (learned) languages of this staff included: French, Portuguese, Italian, Russian, Polish, Czech, Danish, Swedish, Norwegian, and Japanese.

When the project started, the computer (DEK LSI 11/23) and the printing service imposed certain limitations on the bibliography with which we were compelled to live. (1) All available type fonts required the Roman alphabet; non-Roman references had to be transliterated. (2) As important as diacritic and certain punctuation marks are to some languages, the cost of typesetting these items alone would have exceeded the actual total publication costs of this volume. For this reason, all diacritic and some punctuation marks were eliminated unless they were already in the type font available to us. (3) When the project started, the computer program then available permitted the use of only eight subject-area fields. Although this capability expanded as the project advanced, we could not at that point alter this facet of the bibliography.

SUBJECT AREAS

For those articles we examined, that is, those not preceded by an asterisk (*), we

placed at the end of the reference one or more abbreviations indicating the subject area(s) treated in that article. We tended to be conservative in doing this so as not to mislead the user. For example, almost every use of a species name implies a citation of distribution for that species; however, we cite distribution only when a definite locality containing new or usable information is given. An explanation of what might be expected in these fields follows.

Anatomy (ay).— Articles treating anatomy, morphology, cytology, physiology, histology, genetics, nutrition, and related areas. Nothing on pheromones or their chemical nature was listed under this designation.

Behavior (bv).— Articles treating any aspect of the study of pheromones (chemical structure, use, etc.) were listed in this field, as were other aspects of behavior, such as stridulation, mating behavior, primary attraction, social interaction, flight habits, and similar subjects.

Control (cn).— Articles concerned with surveys, the artificial manipulation of populations, economic damage, risk-rating systems, epidemics, insecticides, chemical or cultural control, economic impact, the utilization of beetle-killed forest products, quarantine problems, and anything primarily concerned with the economy of man were listed in this field. It does not include anything on predators, parasites, biological control, or other natural phenomena even though they may have an effect on population regulation.

Ecology (ec).— Included in this category are all articles treating predators and parasites (in any aspect, including their anatomy, classification, etc.); biological control; effect of weather, climate, and other environmental factors on populations; disease agents or vectors; competition; interaction with fungi; and the effect of one scolytid population on another. Artificial manipulation of populations, except for biological control, is excluded from this field.

Habits (hb).— Cited in this category are those articles treating life cycle, habits, host selection, population dynamics, patterns of colonization on a host tree, and related phenomena.

Distribution (ds).— Articles treating geographical distribution, host distribution, distribution in time, and faunal lists are listed here. All references to fossils in any aspect are included.

Taxonomy (tx).— Included here are articles treating nomenclature, classification, keys for identification, taxonomic descriptions when those descriptions are a principal feature of the article, discussions of classification, phylogeny, and related articles. Not cited are superficial descriptions in economically oriented papers unless significant taxonomic information is included.

Miscellancous (ms).— Cited here are popular articles directed at the nonscience-oriented public, articles about scientists, reviews of articles written by others, all articles describing rearing, laboratory, or computer techniques or equipment, including papers reporting pheromone synthesis, and articles of doubtful value to the serious scientist.

It is recognized that many articles are interdisciplinary, contributing significantly to two or more subject areas. In such cases we attempted to so indicate. However, another significant portion of the articles report little or nothing and appear to do little more than get the name of the author in print, or mention a scolytid only incidentally at best. Such articles were usually difficult to classify and are of virtually no value in the serious scientific study of Scolytidae and Platypodidae. Unfortunately, it takes as much of the researcher's time to look up such articles as it does the truly significant oncs. A high percentage of these virtually useless articles were placed only in the miscellaneous (ms) category. This (ms) assignment plus the title are usually adequate to identify these articles. Another significant portion of articles in this category contain only one or two collection records within the known distribution of a species; these are placed only under a (ds) citation where they do have some value.

We made no attempt to assign subject areas to articles not examined by us. Too frequently the subject of the article had little or no relationship to the title, so premature assignment might have been deceptive.

ACKNOWLEDGMENTS

This volume is a compilation of citations of the work of others. We appreciate the contributions, great and small, of every author listed and the efforts each one made to build this aspect of science. We have come a long way in the 226 years covered by this volume, but this vast array of literature represents scarcely more than a first step. Much more remains to be done. Sincere thanks are also expressed to the thousands of colleagues who have graciously sent reprints or other copies of their articles over the past 40 years for our files. These files gave us the courage to undertake this project and bring it to this point. Special thanks are also extended to the many libraries and their staffs for their indulgence in processing an absolute flood of interlibrary loan requests, often with the most meager imaginable source reference as a guide. We are aware of the problems this caused for them and of the heroic efforts they made to help us.

This work could not have been completed without the assistance of a dedicated staff. The staff of the senior author at Brigham Young University, included Deborah (Wong Yanfong) Allan, Vavene Andersen-Pusey, Jennifer (Hu Ying-li) Bartholomew, Mark W. Bennett, Lois Bobinski, Dorothy D. Chase, Naomi Engle, Rita Farías Espinel, Dr. C. Selby Herrin, John C. Higginbotham, Jar Ying-jua, Antonia Martin Mickelson, Paulette W. Runolfson, Cynthia C. Ward, and Marlene Wilson. In Ottawa, Jennifer Read, Canadian Forestry Service, served as technician during the course of this project. We also thank Marie-Josée Boisvenue, entomology librarian and Steven Gamman, library clerk, Canada Department of Agriculture, who answered numerous questions and located hundreds of references for the junior author. Special thanks are extended to Dr. T. Sterner and Dr. E. S. Kondo, former and present (respectively) head of the Forest Insect and Disease Survey, Canadian Forestry Service, for providing the support needed by the junior author. The financial backing that made completion of this phase of the project possible came to the senior author from the U.S. Department of Agriculture through ARS. APHIS, and the Forest Service and from Brigham Young University, and to the junior author through the Canadian Forestry Service, Canada Department of Agriculture.

INTRODUCTION

Le succès de la recherche dans n'importe quel secteur de la Science n'est possible que grâce à la connaissance et à la compréhension de ce qui existe déjà. Ceci suppose une bonne pratique du langage de communication dans la science en cause. Ce principe vaut tout autant pour les rechérches sur les scolytides et les platypodides et la nomenclature (son langage de communication), que pour tout autre champ d'apprentissage.

La présent publication tire son origine de décennies de frustrations découlant de l'innaccessibilité de certaines publications scientifiques ou de spécimens de référence indispensables à nos recherches ou à celles de nos collègues. Les récents progrès qu'ont connus la facilité de reproduction des documents et le traitement de l'information, ainsi que les attitudes plus ouvertes des conservateurs de collections, permettent aujourd'hui d'avoir accès à des données et à des matériels qui n'étaient pas accessibles à tous auparayant. C'est en reconnaissant l'importance des travaux du passé dans la connaissance que nous avons aujourd'hui de la Nature, et de leur apport pour l'avenir que nous avons entrepris ce projet. Si nous avions pu imaginer son ampleur et les ramifications qui devaient en résulter, nous ne l'aurions peutêtre pas entrepris. En effet, ce travail fut un cauchemar de détails, de frustrations et de désillusions. Beaucoup plus de textes que nous ne l'avions prévu ont été rédigés dans certains domaines, alors que beaucoup moins que nous ne l'avions supposé ont été publiés dans d'autres domaines. Nous espérons néanmoins que nos efforts permettront aux utilisateurs de cet ouvrage de localiser plus rapidement et plus facilment l'information déjà publiée et de dépouiller les publications mieux qu'ils n'auraient pu le faire auparavant.

C'est par amour des forêts naturelles et de l'etude des Coléoptères qui les dévastent, que nous étions prêts à sacrifier des décennies de notre temps et nos ressources pour réaliser ce recueil des connaissances actuelles. Malgré ses lacunes, nous espérons que cette contribution sera accueillie dans le même esprit.

A l'origine, notre travail devait comprendre deux parties publiées en un seul volume comprenant (1) un index (catalague) disposé taxonomiquement et (2) la bibliographie servant d'appui a l'index. A cause de l'ampleur de la tâche, de la complexité du financement et des incertitudes de la vie, nous avons choisi de terminer d'abord la bibliographie pour la mettre rapidement a la disposition des utilisateurs. Quant au catalogne, il est en cours d'achèvement et paraîtra dans les meilleurs délais.

En 1982, lorsque nous avons officiellement commencé la rédaction de cette bibliographie, nous pensions que les platypodides ne constituaient rien de plus qu'une sous-famille bien démarquée des scolvtides. Mais des recherches effectuées en 1983 par l'auteur principal, dans le cadre d'un important colloque sur la classification supérieure des Coléoptères, nous ont convaincu de la validite de ce taxon au niveau familial. L'importance de ce résultat tient au fait qu'un fort pourcentage des articles cités principalement pour les scolytides mentionnent également des platypodides. Ce genre d'article sera difficile à identifier tant que le catalogue systématique n'est pas paru.

Matériel et Méthodes

Le point de départ de cette bibliographie remonte à 1946 lorsque l'auteur principal a commencé à constituer un fichier des publications de taxonomie sur les scolytides et les platypodides destiné à ses recherches personnelles.

Le dépouillement de tous les articles jusqu'à 1970 a été effectué avec les principales revues analytiquees: Zoological Record. Biological Abstracts, Bibliography of Agriculture. Review of Applied Entomology (Série A), Forestry Abstracts. En outre, les bibliographies de Rudolf Kleine (1939, etc.) et de Karl E. Schedl (1974) ont été dépouillées. En utilisant ces sources comme base, les articles ont été demandés aux auteurs ou achetés (soit des originaux chez des marchands de livres d'occasion, soit des photocopies obtenues par le prêt interbibliothèque) et leurs listes de références analysées. Grâce à cette méthode de recherche à effet d'entraînement, d'autres références son venues s'ajouter et le processus s'est répété tant que les ressources n'ont pas été épuisées.

En 1981, le second auteur, après avoir été confronte à des problèmes semblables à ceux susmentionnés, a songé à dresser un catalogue systématique des scolytides et des platypodides. Après consultations, nos deux projets ont été combinés. L'auteur principal a dépouillé des publications de 1758 à 1959 et v

a inclus des références postérieures à 1959 qui se trouvaient dans ses dossiers au début du projet en 1982. Le second auteur a fait le dépouillement systématique (par ordinateur) des publications de 1960 à 1984 et a ajouté des références que l'auteur principal n'avait pas relevées pour la période antérieure. Deux programmes informatisés de recherches ont été utilisés (1) BIOS1S (Biological Abstracts) de 1970 à aujourd'hui, et (2) le Commonwealth Agriculture Bureau qui fournit les données bibliographiques de base, plus les résumés.

Il convient de noter que les références énumérées sont celles qui: (1) contiennent un mot-clé dans le titre (scolytides, scolyte, etc.), (2) ont été citées dans les références d'un autre auteur ou (3) ont été rédigée par un auteur qui a beaucoup publié sur ces deux familles. Il nous manque certainement un grand nombre de publications qui n'ont jamais été citées par les auteurs, ou dont le titre ne comportait pas de mot-clé pouvant être reconnu. Certains de ces articles n'ont été retrouvés que grâce aux connaissances personnelles de nos collègues ou par pur hasard. Notre compilation sur ce qui a été publié aux Etats-Unis, au Canada et en Europe de l'Ouest est jugée excellent (peut-être complète à 95%); bonne (peut-être 70%) en Europe du Nord et de l'Est, au Mexique, en Amérique centrale et du Sud, en Inde et en Australie; et médiocre (sans doute pas plus de 50%) en Asie (sauf l'Inde) et en Afrique. Nous espérons que la publication de ce volume incitera les utilisateurs à examiner soigneusement les publications qu'ils connaissent et à nous faire connaître les références manguantes, à des fins d'inclusion dans un supplément.

Nous avons examiné tous les articles énumérés, sauf ceux précédés d'un astérisque (*). Cette démarche nous a permis de rejeter plus de 10% des références citées par Kleine (1939, etc.) et Schedl (1974), du fait qu'elles ne traitaient ni des Scolytides ni des Platypodides, et d'en rectifier beaucoup d'autres incorrectement reproduites jusqu'ici. Cet examen nous a également permis de donner avec précision de nombreuses références. Mais dans plusiers cas, il fut impossible de trouver l'article à l'endroit cité par les auteurs. Nous avons alors répété ces erreurs en faisant état, en supposant qu'il s'agissait d'un lapsus calami

et que l'article sera eventuellement retrouvé un jour. Ces références marquées d'un astérisque (*) son directement copiées de nos sources (citées di-dessus). Nous n'avons pas tenté de corriger ces références ou de compléter les citations de sources abrégées, sauf dans les cas où nous connaissions parfaitement les revues contenant l'article en question.

Nous nous sommes heurté à quelques problèmes dans l'utilisation des bibliographies de Kleine (1939, etc.) et de Schedl (1974). En effet, une partie importante de leurs références (noms d'auteurs, titres et sources) sont des traductions de la langue originale d'articles que nous n'avons pu examiner, comme un bon nombre des titres figurant ici en allemand, mais publiés dans des pays d'Europe de l'Est et du Nord qui tombent dans cette categorie. Ces situations ont considérablement compliqué l'identification de la revue d'origine et, partant, la recherche de l'article en question.

Une source de difficulté dans l'utilisation de notre bibliographie concerne les noms des auteurs. Les articles qui utilisent des alphabets autres que le romain ont nécessité une translitération. Cependant, les divers modes de transcription ont souvent produit dans le passé une multiplicité d'orthographes pour un même nom d'auteur. Dans la mesure du possible, nous nous sommes efforcés de choisir le nom le plus fréquemment utilisé ou le mieux connu, plutôt que de citer le même auteur à plusieurs endroits. Nous avons également constaté l'utilisation, apparemment délibérée, de plusieurs noms par le même auteur. Pour minimiser ce problème, nous avons inscrit le nom le plus complet lorsqu'il nous était disponible.

Tous nos collaborateurs sont multilingues. Les langues maternelles comprennent l'anglais, l'allemand, l'espagnol, le mandarin et le cantonais. Quant aux langues apprises, elles comprenaient le français, le portuguais, l'italien, le russe, le polonais, le tchécoslovaque, le danois, le suédois, le norvégien et le japonais.

Au début du projet, l'ordinateur (DEK 11/23) et le service d'impression ont imposé certaines limites impossibles à contourner. (1) Les polices de caractères (fontes) disponibles ne comprenaient que des alphabets romains, de sorte que les références autres qu'en

romain durent être translitérées. (2) Bien que les signes diacritiques et de ponctuation soient très importants dans certaines langues, le coût de composition de ces seules références aurait dépassé les coût totaux de réalisation du volume. C'est pourquoi tous les signes diacritiques et certains signes de ponetuations ont été éliminés, à moins qu'ils n'aient existé dans les fontes disponibles. (3) Lorsque le projet a débuté, le programme informatique ne permettait qu'un classement des référenees sous 8 rubriques sculement. Même si cette capacité s'est acerue au fur et à mesure de l'avancement de l'ouvrage, nous ne pouvions plus modifier cet aspect de la bibliographie. Nous avons donc conservé les 8 rubriques dont nous décrivons le contenu ei-dessous.

RUBRIQUES

Pour tous les articles que nous avons personnellement revu (e'est-a-dire eeux non précédés d'un asterisque), nous avons placé a la fin de la référence une ou plusieurs abréviations indiquant la (les) matiere(s) taitée(s) dans cet article. Nous avons eu tendance à demeurer prudents à cet égard pour ne pas induire l'utilisateur en erreur. Par exemple, presque chaque utilisation d'un nom d'espèce suppose un citation de la distribution de cette espece, mais nous ne citon la distribution que lorsqu'un paragraphe bien déterminé de l'article contenant des données nouvelles ou utilisables existe.

Anatomie (ay).— Les articles traitant d'anatomie, de morphologie, de cytologie, de physiologie, d'histologie, de génétique, de nutrition et de domaines connexes. Aueune référence sur les phéromones ou leur composition chimique n'est inserite sous cette désignation.

Comportement (bv).— Les artieles traitant de tout aspect de l'etude des phéromones (structure chimiques, utilisation, etc.) y sont énumérés, tout eomme d'autres aspects du comportement tels la stridulation, l'accouplement, l'attraction primaire, l'interaction sociale, les habitudes de vol et autres sujets connexes.

Moyens de lutte (cn).— Les articles traitant des enquêtes, de la manipulation des populations, des dégâts, des systèmes d'évaluation

des risques, des infestations, des insecticides, des moyens de lutte chimiques on culturaux, des répereussions économiques, de l'utilisation de produits forestiers détruits par les Coléoptères, de problèms de quarantaine et toute question se rapportant essentiellement a l'economie son cités dans cette rubrique. Mais elle ne dit rien des prédateurs, des parasites, de la lutte biologique ou d'autres phénomènes naturels, même s'ils peuvent influer sur la régulation des populations.

Ecologie (ec).— Sont compris sous cette rubrique, tous les articles traitant des prédateurs et des parasites (tous les aspects, y compris leur anatomie, classification, etc.), le la lutte biologique, de l'effet du climat et des facteurs environnementaux sur les populations, des agents pathogènes, de la compétition, de l'interaction avec les champignons et de l'effet d'une population de scolytes sur une autre. La manipulation des populations, sauf en ce qui concerne la lute biologique, est exclue de ce domaine.

Habitudes (hb).— Entrent dans cette catégorie, les articles traitant du cycle biologique, de la biologie, de la sélection de l'hôte, de la dynamique des populations, des modes de colonisation d'un arbre hôte et des phénomènes apparentés.

Distribution (ds).— Les articles traitant de la distribution géographique, de la distribution de l'hôte, les listes faunistiques sont énumérés iei, ainsi que toutes les références aux espèces fossiles.

Taxonomie (tx).— Comprend les articles traitant de la nomenclature, de la classification, des clés d'identification, des descriptions de taxons lorsqu'ils constituent la matière principale de l'article, des discussions sur la classification, la phylogénie et des articles connexes. Par contre, les descriptions superficielles dans des documents à vocation économique ne sont pas citées, à moins qu'elles ne comprennent des données taxonomiques importantes.

Divers (ms).— Sont inclus dans cette catégorie les articles de vulgarisation, les biographies des auteurs, les analyses d'articles et toutes les publications décrivant des techniques ou du matériel d'élevage, de laboratoire ou de traitement de l'information, y eompris les documents faisant état de la synthèse des phéromones ainsi que les articles

présentant une valeur douteuse pour le chercheur sérieux.

Il est admis que bon nombre d'articles recouvrent plusieurs disciplines et contribuent largement à deux ou plusieurs matières. En pareil cas, nous avons tenté de l'indiquer. Cependant, une autre proportion importante des articles ne dit pratiquement rien et semble n'être destinée, au plus, qu'à faire imprimer le nom de l'auteur ou mentionner une capture accidentelle dans le meilleur des cas. Ce genre d'article fut géneralement difficile à classer et ne présente virtuellement aucun intérêt scientifique.

Malheureusement, le chercheur doit consacrer autant de temps à examiner ces articles que ceux réellement pertinents. Un fort pourcentage de ces articles, pratiquement inutiles, a été placé dans la catégorie divers (ms). Cette catégorisation, plus le titre, suffisent généralement à les identifier. Une autre proportion importante d'articles classés dans cette catégorie ne contient qu'une ou deux mentions de récolte dans la distribution connue d'une espèce et ils ne font l'objet que d'une seule citation (ds) où ils acquièrent alors une certaine valeur.

Nous n'avons pas cherché a assigner des matières à des articles que nous n'avons pas examinés. Il est en effet arrivé trop fréquemment que le sujet de l'article n'ait pratiquement rien à voir avec le titre, de sorte qu'une attribution prématurée aurait pu être décevante.

REMERCIEMENTS

Le présent volume est une compilation de citations de travaux d'autres personnes. Nous apprécions les contributions, grandes ou petites, de chaque auteur énuméré, et les efforts que ehacun a déployé pour cette science. Nous avons fait beaucoup de chemin dans les 226 années visées par ce volume, mais ee vaste assortiment de publications répresente à peine plus qu'une premiere étape. Il reste encore beaucoup à faire. Nous tenons également à recercier les milliers de collègues qui nous ont gracieusement fait parvenir des tirés-à-part de leurs articles au cours des quarante dernieres années pour enrichir nos dossiers. Ils nous ont donné le courage nécessaire pour entreprendre ce projet et l'amener

dans son état actuel. Nous tenons aussi à remercier spécialement les nombreuses bibliothèques et leurs personnels pour leur amabilité à répondre à une avalanche de demandes de prêts, souvent accompagnées de la plus maigre référence qu'on puisse imaginer comme guide. Nous sommes conscient des problèmes que cela leur a causé et des efforts héroïques qu'ills ont déployés pour nous aider.

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EINLEITUNG

Sinnvolle Forschung auf jeglichem wissenschaftlichen Gebiet setzt Kenntnis und Verständnis des bereits Bekannten voraus. Auch die Vertrautheit mit der Fachsprache des betreffenden Gebiets wird vorausgesetzt. Dies gilt für die wissenschaftliche Erforschung der Scolytidae und Platypodidae, die Nomenklatur, ebenso wie für jedes andere Fachgebiet.

Die hier vorgelegte Arbeit entstand in jahrzehntelangen Frustrationen, die auf die Unzulänglichkeit von Literatur oder den Mangel an authentischen Taxa zurückzuführen ist, wie sie für die Art-Bestimmung in unseren Untersuchungen oder denen unserer Kollegen so notwendig sind. Die gegenwärtigen Fortschritte in der Verwielfältigung und Bearbeitung von Informationen und in der fortschrittlichen Einstellung der Kuratoren von Typen-Sammlungen, auf welchen diese Daten basieren, sorgen für Zugang und Verbreitung von Material und Ideen, die früher nicht jedem verfügbar waren. Es war das Wissen um die Bedeutung, welche die geschichtliche Entwicklung für unser heutiges Verständnis von der Natur besitzt, und den Beitrag, den diese für die Zukunft leisten wird, dass wir dieses Projekt unternommen haben. Hätten wir seinen Umfang und seine Ausuferungen geahnt, hätten wir wohl nicht begonnen. Dieses Werk war ein Alptraum an Einzelheiten. Frustrationen und täuschungen. Weit mehr war in einigen Bereichen geschrieben worden als wir erwartet hatten, und in anderen Gebieten weit weniger. Wir hoffen, dass unsere Bemuhüngen dem Benützer dieses Bandes ermöglichen, früher veröffentlichte Informationen sehneller und einfacher ausfindig zu machen, und ihm auch die gründlichere Untersuchung der Literatur gestattet, als dies sonst der Fall gewesen wäre. Es war unsere Neigung zu beiden, dem Wald und der Erforschung der Käfer, die ihn zerstören, dass wir gewillt waren, Jahrzehnte unseres Lebens und private Resourcen der Zusammenfassung dieser Bruchstücke heutigen Wissens zu opfern. Wir hoffen, dass es trotz seiner Mängel in diesem Sinn akzeptiert wird.

Es war ursprünglich vorgesehen, dass dieser Katalog in zwei Teilen, jodoch in einem Band veröffentlicht würde: (I) ein taxonomisch ausgerichtetes Sachverzeichnis (Katalog), und (2) die Bibliographie, auf welchem das Sachverzeichnis basiert. Wegen des Umfanges dieses Unternehmens, der Komplexität, der Finanzierung und den Unsicherheiten des Lebens, entschieden wir

uns, die Bibliographie zuerst fertigzustellen, und sie zum Gebrauch zur Verfügung zu stellen. Der Fachindex (Katalog) wird entspreehend später folgen.

Im Jahre 1982, als die Arbeit an der Bibliographie der Scolytidae und Platypodidae offiziell begann, herrschte die Annahme vor, dass die Platypodiden nichts als eine wohl ausgewiesene Unterfamilie der Scolytiden seien. Weitere Untersuchungen des Senior-Autor's im Jahre 1983 für ein Symposium der Klassifikation der Coleoptera überzeugte ihn von der Gültigkeit dieser Familie. Wichtig ist hierbei, dass ein grosser Prozentsatz der Artikel, die sich mit Scolytiden befassen, auch Platypodiden erwähnen. Diese Artikel mögen nicht auffindbar sein, bis das Sachverzeichnis gedruckt ist.

MATERIAL UND METHODEN

Diese Bibliographie hat ihren Ursprung im Jahre 1946, als der Senior-Autor eine Kartei systematischer Literatur über Scolytiden und Platypodiden für seinen Eigengebrauch zu schreiben begann. Eine systematische Suche nach allen Artikeln bis 1970 wurde in folgenden Veröffentlichungen durchgeführt: Zoological Record, Biological Abstracts, Bibliography of Agriculture, Review of Applied Entomology (Serie A), und Forestry Abstracts. Zusätzlich wurden die Bibliographien von Rudolf Kleine (1939, etc.) und von Karl E. Schedl (1974) untersucht. Diese Ouellen dienten als Grundlage, auf der die Artikel von den Autoren erbeten oder gekauft (entweder Originalkopien von Buchantiquatriaten oder Photokopien aus Bibliotheken) wurden; ihre Literaturverzeichnisse wurden wiederum überprüft. Durch diese Schneeball-Methode des Suchens wurden zusätzliche Referenzen sichergestellt. Dieser Prozess wurde wiederholt, bis sich die Quellen erschöpften.

Im Jahre 1981 erwägte der Junior-Autor aus ähnlichen, bereits erwähnten Schwierigkeiten, die Zusammenstellung eines Katalogs über die Scolytiden und Platypodiden. Nach einigen Rücksprachen wurden die Projekte zusammenglegt. Der Senior-Autor sammelte vor 1980 die Literatur aus den Jahren von 1758–1970, und schloss weitere Referenzen ab 1959 ein, welche er 1982 beim Beginn des Projektes bereits hatte. Der Junior-Autor unternahm systematische (Computer-)Nach-

suche nach der Literatur aus den Jahren 1960–1984 und fügte vom Senior-Autor ausgelassene Referenzen hinzu. Die Computer-Auswertung stammte aus "BIOSIS" (Biological Abstracts) von 1970 bis heute und vom Commonwealth Agriculture Bureau von 1980 bis heute.

Zu bemerken ist, dass die Referenzen, die wir aufführen, entweder (1) ein Schlüsselwort im Titel haben (d.h. Scolytidae, Borkenkäfer, etc.) oder (2) in einer Referenz eines weiteren Autors aufgeführt wurden, oder (3) dass sie von einem Autor veröffentlicht wurden, der ausführlich über diese zwei Familien geschrieben hatte. Es fehlt eine gewisse Anzahl von Artikeln, die Informationen über Scolytiden und Platypodiden enthalten, deren Autoren es versäumten, ein geeignetes Schlüsselwort im Titel festzuhalten, oder nie von anderen Autoren referiert wurden. Diese Artikel können nur durch persönliche Kenntnis oder durch Zufall gefunden werden. Wir denken, dass die in den USA, Kanada, und Westeuropa veröffentlichte Literatur fast vollständig (vielleicht zu 95 Prozent) erfasst ist; für Nord und Osteuropa, Mexiko, Zentralund Südamerika, Indien, und Australien ist sie gut (vielleicht zu 70 Prozent), und für Asien (ausser Indien) und Afrika ist sie mangelhaft (vielleicht nicht mehr als 50 Prozent) erfasst. Wir hoffen, dass die Veröffentlichung dieses Bandes den Benützer dazu anregen wird, die ihm bekannte Literatur durchzusehen und fehlende Referenzen zur Ergänzung den Autoren zukommen zu lassen.

Wir haben persönlich alle aufgeführten Artikel überprüft, ausser denen, die mit einem Stern (*) gekennzeichnet sind. Diese Ueberprufung hatte eine Eliminierung von etwa 10 Prozent der von Kleine (1939, etc.) und Schedl (1974) aufgeführten Referenzen zur Folge, weil sie weder von Scolvtiden noch von Platypodiden handelten, ebenso wie die Änderung vieler weiterer Arbeiten, die inkorrekt zitiert worden waren. Dies ermöglichte uns, etliehe Artikel genauer zu zitieren; allerdings, wenn wir die erwähnten Artikel nicht am richtigen Ort vorfanden, haben wir den Irrtum wiederholt und dies in der Referenz erwähnt, in der Annahme, dass ein Schreibfehler gemacht worden war, und dass der Artikel irgendwann von irgendwem gefunden werden wird. Die mit einem Stern (*) vermerkten Referenzen sind von unseren

Quellen kopiert (wie oben erwahnt) und wurden von uns weder gefunden noch überprüft. Wir versuchten nicht, diese Referenzen zu korrigieren oder Abkürzungen auszuschreiben, ausser wir waren mit der Zeitschrift, in der dieser Artikel erschien, vertraut gewesen.

Ein grosses Problem entdeckten wir im Gebrauch von Kleine (1939, etc.) und Schedl (1974). Ein wesentlicher Anteil ihrer Referenzen, Autorennamen, Titel, und Quellen sind Uebersetzungen aus der Originalsprache des Artikels und wurden von uns nicht überprüft. Viele der deutschen Artikel, die hier erwähnt werden, die aber in Ost- und Nordeuropa veröffentlicht wurden, fallen in diese Kategorie. Dies erschwerte das Auffinden der Zeitschrift und auch den Ort des betreffenden Artikels.

Ein wesentliches Problem im Gebrauch unserer Bibliographie ist das der Autorennamen. Sprachen, die nicht das römische Alphabet verwenden, erforderten die Uebersetzung der Namen. Allerdings, verschiedene Schemata der Namensänderung ergaben verschiedene römische Schreibweisen desselben Autorennamens. Bis zu dem Punkt, dass er erkannt werden kann, verwendeten wir die gebräuchlichste Schreibweise. Ein ähnliches Problem ist, dass einige Autoren offensichtlich verschiedene Namen verwendeten. Um dieses Problem zu minimalisieren, führten wir, soweit bekannt, den ganzen Namen des Autors auf.

Der Lehrkörper, der den Autoren half, ist mehrsprachig. Muttersprachen schliessen ein: Englisch, Deutsch, Spanisch, Mandarin, und Kantonesisch. Zweitsprachen (erlernte Sprachen) schliessen ein: Französisch, Portugiesisch, Italienisch, Russisch, Polnisch, Teschechisch, Dänisch, Schwedisch, Norwegisch, und Japanisch.

Als das Projekt begann, machten Computer (DEK LSI 11/23) und Drucker gewisse Einschränkungen in der Gestaltung der Bibliographie notwendig, mit denen wir zu leben hatten. (1) Alle verfügbaren Schreibköpfe erforderten römisches Alphabet; römische Referenzen mussten erst übersetzt werden. (2) Wie wichtig auch Satzzeichen und gewisse Punktierungen in verschiedenen Sprachen sind, die Kosten für die Setzung dieser Zeichen allein hätten Gesamtkosten dieses Bandes überschritten.

Aus diesem Grund wurden diese Zeichen so weit wie möglich eliminiert. (3) Als das Projekt startete, erlaubte uns das damals erhältliche Computer-Programm nur acht Fachgebiete. Obwohl sich die Kapazität erweiterte, während das Projekt fortschritt, konnten wir an der Gestaltung der Bibliographie nichts mehr ändern.

SACHGEBIETE

Den uns züganglichen Artikeln (also solchen ohne Stern *) haben wir am Ende der Referenz eine oder mehrere Abkürzungen angefügt, die auf das oder die Sachgebiete hinweisen, die in dem Artikel angesprochen werden. Wir blieben dabei konservativ, um den Benützer nicht irrezuführen. Zum Beispiel, fast jede Angabe eines Art-Namens enthält eine Erwähnung der Verbreitung dieser Art; allerdings erwähnen wir die Verbreitung nur, wenn eine bestimmte Ortsangabe eine neue oder brauchbare Information bedeutet. Hierzu folgende Erläuterungen:

Anatomie (ay).— Artikel, die die Anatomie, Morphologie, Zytologie, Physiologie, Histologie, Genetik, Ernährung, und verwandte Gebiete behandeln. Unter diesem Schlagwort wird nichts über die Lockstoffe oder deren chemische Natur erwähnt.

Verhalten (bv).— Artikel, die irgendeinen Aspekt der Lockstoffe (chemische Struktur, Anwendung, etc.) behandeln, wurden in dieser Kategorie aufgeführt, wie auch andere Verhaltensweisen, wie zum Beispiel Stridulation, Paarungsverhalten, Primärlockstoffe, soziale Wechselwirkungen, Flugverhalten, und Aehnliches.

Kontrolle (en).— Artikel, die mit der Erkundung befasst sind; die künstliche Manipulation von Populationen, wirtschaftliche Schäden, Prognose, Epidemien, Insektizide, chemische oder kulturelle Gegenmassnahmen, wirtschaftlicher Impakt, die Verwendung von Käferholz, Quarantäneprobund Hauptanliegen des leme. Managements werden hier aufgeführt. Dieses Sachgebiet beinhaltet nichts über Predatoren, Parasiten, biologische Bekämpfung oder andere natürliche Phänomene, obwohl diese auf die Abundanz Einfluss haben mögen.

Oekologie (ec).— In dieser Kategorie wer-

den jegliche Artikel über Räuber und Parasiten (in jedem Aspekt, einschliesslich ihrer Anatomie, Systematik, etc.) eingeschlossen; biologische Bekämpfung; Einfluss des Wetters, Klima, und andere Umwelteinflüsse auf die Bevölkerung; Krankheitsfaktoren und -Vektoren; Konkurrenz; Wechselwirkungen mit Pilzen; und die Wirkung einer Scolytidenpopulation auf die andere. Pest Management, abgesehen von der biologischen Bekämpfung, ist in diesem Sachgebiet nicht enthalten.

Gewohnheiten (hb).— In dieser Kategorie werden die Artikel zitiert, die den Lebenszyklus, Wirtswahl, Populationsdynamik, Ablauf der Besiedlung eines Wirtsbaumes und ähnliche Phänomene behandelt.

Verbreitung (ds).— Artikel, die die geographische Verbreitung, Wirtsareale, zeitliche Verteilung und Fauna-Listen erwähnen, werden hier aufgeführt. Alle Hinweise auf Fossilien, gleich welcher Form, werden hier ebenfalls eingeschlossen.

Systematik (tx).— Artikel, die die Nomenklatur, Taxonomie, Bestimmungsschlüssel, systematische Beschreibungen, wenn diese im Vordergrund des Artikels stehen, behandeln; Diskussionen über Klassifikationen, Phylogenie, und ähnliche Artikel. Nicht zitiert wurden oberflächliche Beschreibungen in wirtschaftsorientierten Zeitschriften, sofern keine wesentliche systematische Information eingeschlossen ist.

Verschiedenes (ms).— Hier werden Artikel zitiert, die an das nicht-wissenschaftliche Publikum gerichtet sind, Artikel über Wissenschaftler, Besprechungen über Review-Artikel anderer; alle Artikel, die die Aufzucht, Labors, Computer-Techniken, oder Geräte beschreiben, ebenso wie Berichte über die Synthese von Pheromonen und Artikel von zweifelhaftem Wert für den ernsthaften Wissenschaftler.

Selbstverständlich sind viele Artikel interdisziplinär und tragen zu zwei oder mehr Fachgebieten Wesentliches bei. In solchen Fällen haben wir versucht, dies hervorzuheben. Allerdings, eine weitere beträchtliche Zahl von Artikeln sagt wenig oder nichts aus und scheint lediglich dazu zu dienen, den Namen des Autors zu drucken, oder höchstens einen Scolytiden zufälligerweise zu erwähnen. Solche Artikel waren gewöhnlich schwer einzuordnen und sind praktisch wertlos in ernsthaften, wissenschaftlichen Erforschung von Scolytiden

und Platypodiden.

Bedauerlicherweise kostet es den Forscher ebenso viel Zeit dergleiche Artikel aufzuspüren wie die wirklich Wichtigen. Ein grosser Teil der praktisch nutzlosen Beiträge wurde unter der Kategorie "Verschiedenes" (ms) aufgelistet. Die (ms) Angabe und der Titel genügen gewöhnlich, um diese Beitrage zu erkennen. Ein weiterer grösserer Anteil in dieser Kategorie gibt lediglich ein oder zwei Hinweise auf das Vorkommen innerhalb der bekannten Verbreitung einer Art; soweit diese Hinweise es wert sind, wurden sie unter (ds) zitiert.

Artikel, die uns nicht vorgelegen haben, wurden keinem Sachgebiet zugewiesen. Zu häufig stimmte der Gegenstand eines Artikels wenig oder gar nicht mit dem Titel überein, sodass eine voreilige Zuweisung täuschen könnte.

Danksagungen

Dieser Band ist eine Zusammenstellung von Zitaten der Arbeiten anderer. Wir schätzen die Beiträge, grosse und kleine, von jedem der aufgeführten Autoren und die Anstrengungen, die jeder zu diesem Aspekt der Naturwissenschaften Leistete. Wir sind weit vorangekommen in den 226 Jahren, die von diesem Band gedeckt werden. Aber dieses grosse Aufgebot an Literatur stellt kaum mehr dar, als einen ersten Schrift. Viel bleibt zu tun. Aufrichtigen Dank an Tausende von Kollegen, die uns in den letzten 40 Jahren gütigerweise Sonderdrucke oder sonstige Kopien ihrer Artikel zukommen liessen. Die Sammlung dieser Separata gab uns den Mut, dieses Projekt zu unternehmen und es bis hierhin zu bringen. Besonderer Dank geht auch an viele Bibliotheken und deren Angestellte, für ihre Gedult in der Bewältigung der Schwemme von Leihanträgen, oft mit sehr mageren Quellenangaben. Wir sind uns der Probleme, die dies hervorgerufen hat, bewusst und auch der heroischen Anstrengungen, die unternommen wurden, um uns zu helfen.

Diese Arbeit hätte ohne die Hilfe und Assistenz hingebungsvoller Mitarbeiter nicht ausgeführt werden können. Die Mitarbeiter des Senior-Autors an der Brigham Young University schliessen ein: Deborah (Wong Yanfong) Allan, Vavene Andersen-Pusey, Jennifer (Hu Ying-li) Bartholomew, Mark W. Bennett, Lois Bobinski, Dorothy D. Chase, Naomi Engle, Rita Farías Espenel, Dr. C. Selby Herrin, John C. Higginbotham, Jar Ying-jua, Antonia Martin Mickelson, Paulette W. Runolfson, Cynthia C. Ward, und Marlene Wilson. In Ottawa hat Jennifer Read, Canadian Forestry Service als Technikerin diesem Projekt gedient. Wir danken auch Marie-Josée Boisvenue, Bibliothekarin fur Entomolgie und Steven Gamman, Bibliothekar im Canada Department of Agriculture, der zahlreiche Fragen beantwortete und Hunderte von Referenzen fur den Junior-Autor ausfindig machte. Bosonderen Dank auch an Dr. T. Sterner und Dr. E. S. Kondo, früherer Direktor und heutiger Ehrendirektor der Forest Insect and Disease Survey. Canadian Forestry Service, die dem Junior-Autor die nötige Unterstützung gewährten. Die finanzielle Unterstützung, die diese Phase der Fertigstellung dieses Projekts ermöglichte, kam für den Senior-Autor fom U. S. Department of Agriculture durch ARS, APHIS, und den Forest Service und von der Brigham Young University, für den Junior-Autor durch den Canadian Forestry Service und das Canada Department of Agriculture. (Translation—Dr. J. P. Vité, Dr. D. Klimetzek).

INTRODUCCIÓN

Solamente con un conocimiento y entendimiento de la información actualmente disponible se puede lograr una investigación significativa en cualquier aspecto de la ciencia. Es necesario tener una familiaridad con el idioma empleado en la comunicación de la ciencia; en la misma manera esta familiaridad es necesaria en el estudio científico de la Scolytidae y Platypodidae, y la nomenclatura, su lenguage de comunicación.

El presente estudio tuvo sus orígenes en décadas de frustración que resultaron como consecuencia de la inaccesibilidad de literatura o de especímenes auténticos necesitados para la identificación de las especies usadas en la investigación tanto nuestra como la de nuestros colegas. Avances recientes en la duplicación y procesamiento de la información asi como en las actitudes progresistas de

en los muscos los curadores de registros de especímenes de los cuales la información es tomada; hacen posible el acceso y disemina-<mark>ción de materiales e ideas que previamente no</mark> estaban al alcance de todos. Emprendimos este proyecto conociendo la importancia de la historia del pasado para la comprensión de la naturaleza en el presente y su repercusión en el futuro. Si nosotros hubiéramos previsto la magnitud de este proyecto y sus ramificaciones, no lo habríamos iniciado. A lo largo de esta empresa hemos enfrentado muchos pormenores y a la vez experimentado grandes frustraciones y decepciones. En ciertas áreas se ha escrito mucho más de lo que habíamos sospechado y en otras, mucho menos de lo que habíamos asumido. Esperamos que <mark>nuestros esfuerzos faciliten al usuario localiz</mark>ar <mark>rápida y facilmente información que ya ha sido</mark> publicada o en su defecto asistirle en sus investigaciones detalladas de información, si este es el caso. Es por causa de nuestra pasión por las forestas naturales y el estudio de los escarabajos que las devastan que nosotros estuvimos dispuestos a sacrificar de nuestro tiempo y recursos propios para completar este fragmento de conocimiento. Anhelamos que esta obra sea aceptada con esta misma disposición, a pesar de todas las deficiencias que podría tener.

Originalmente se trató de compilar este catálogo en dos partes y publicarlo como una sola unidad: (1) un índice taxonómico dividido en materias y (2) la bibliografía en la cuál este índice se basa. Debido a la enormidad de este proyecto, sus complejidades de localización y a las incertidumbres de la vida, nosotros hemos decidido completar primero la parte bibliográfica para el uso del lector. El índice taxonómico (catálogo) está siendo completado y estará disponible en un corto tiempo.

En 1982, cuando nosotros emprendimos nuestra bibliografía de la Scolytidae y Platypodidae se asumio que la Platypodidae no constituía más que una subfamilia bien marcada de la Scolytidae. De todas maneras debido a investigaciones realizadas en 1983 por el autor principal para un simposio especializado en la clasificación de la Colcoptera, se convenció de la validez de esta familia. Lo relevante de este asunto es que un gran porcentaje de los artículos citan a la Scolytidae y Platypodidae como si fuera la misma familia. Estos artículos men-

cionados no serán identificados hasta que el índice taxonómico sea impreso.

MÉTODOS Y RECURSOS

Esta bibliografía tuvo sus orígenes en 1946; cuando el autor principal de la obra inició un fichero de literatura taxonómica de la Scolytidae y Platypodidae para uso de sus investigaciones privadas. Una búsqueda sistemática de todos los artículos publicados hasta 1970 fue conducida en: Zoological Record, Biological Abstracts, Bibliography of Agriculture. Review of Applied Entomology (Series A), v Forestry Abstracts. Además, investigó las bibliografías de Rudolf Kleine (1939, etc.) y Karl E. Schedl (1974). Usando estos recursos como bases se solicitó o compró artículos impresos de los autores (sean estas copias de vendedores de libros usados o fotocopias de libros prestados a travéz de bibliotecas) y sus listas de referencias corregidas. Por medio de este método de indagación minuciosa, se obtubo referencias adicionales y el proceso se repitió una vez tras otra hasta que todos los recursos fueron agotados.

En 1981, el autor secundario empezó a considerar seriamente la idea de abrir un catálogo de la Scolytidae y Platypodidae después de enfrentarse con problemas similares a los mencionados anteriormente. Tras algunas consultas los provectos fuerou combinados. Antes del año 1980, el autor principal investigó la literatura disponible desde el año 1758 al 1970 e incluyó referencias adicionales a partir del año 1959 las cuales ya las tenía archivados para 1982, cuando el provecto tomó sus inicios. Por otra parte el autor secundario realizó una búsqueda sistemática v computarizada de la literatura desde el año 1960 hasta el año 1984 y añadió referencias adicionales que el autor principal había pasado por alto en los períodos anteriores. La búsqueda en computadora se recelizó para BIOSIS (Biological Abstracts) desde 1970 hasta el presente y la información del Commonwealth Agricultural Bureau desde 1980 hasta el presente.

Como se podrá notar, las referencias que detallamos son aquellas que: (1) contienen una palabra clave en el título (e. g., Scolytidae, escarabajo de corteza, etc.), (2) se citaron previamente en las referencias de otro autor, o (3) fueron escritas por un autor que ha publicado

acerca de estas dos familias en forma extensa. Nosotros perdimos un número substancial de artículos que contenían información acerca de la Scolytidae y Platypodidae por causa de que los autores no incluyeron palabras claves apropiadas en sus títulos para el reconocimiento en índices generales o en su defecto no fueron citados por otros autores que si lo habían hecho. Esos artículos pueden ser encontrados solamente por medio del conocimiento personal de nuestros eolegas o en forma accidental. La literatura que abarea los Estados Unidos, Canada, y Europa Occidental es considerada excelente (tal vez un 95% completa); la de la parte norte de la Europa Oriental, Méxieo, Sur v Centro-America, India, y Australia es buena (tal vez un 70%), y en Asia (exeluvendo India) y Africa no es buena (tal vez no más del 50%). Se espera que la publicación de este volumen estimulará al usuario a revisar cuidadosamente toda literatura conocida por ellos y a enviar toda referencia no mencionada a los autores para ser incluida en un suplemento.

Nosotros hemos examinado personalmente las copias de todos los artículos que listamos. excepto aquellas referencias que están precedidas por un asterisco (*). Eliminamos un 10% de las referencias citadas por Kleine (1939, ete.) y Schedl (1974), debido a que ellos no trataron la Scolytidae o Platypodidae; también alteramos muchas otras referencias que estaban incorrectamente eitadas. También nos permitió citar en una manera más precisa numerosos artículos. De todas maneras, en muchos casos no pudimos encontrar el artículo en el lugar citado por los autores, su error lo hemos repetido y manifestado en la referencia individual con la creencia de que un error clerical tuvo lugar y que algún día el artículo pueda ser encontrado por alguien en algún lugar. Todas las referencias marcadas con un asterisco (*) son eopias de nuestras fuentes (citadas anteriormente) las cuales no fueron encontradas ni examinadas por nosotros. Tampoco intentamos corregir tales referencias o eompletar citas abreviadas excepto en aquellos casos donde nosotros estábamos familiarizados profundamente eon las publicaciones que contenían eiertos artículos.

Un gran problema fue detectado al usar Kleinc (1939, etc.) y Schedl (1974). Una porción substancial de sus referencias, nombre de autores, títulos y fuentes representan tradueciones del idioma original del artículo, las cuales no fueron examinadas por nosotros. Muchos de los títulos listados aqui en Alemán pero publicados en países del norte y este de Europa se hallan en esta categoría. Esto inerementó grandemente la dificultad de identificar la publicación original y eonsecuentemente localizar el artículo tratado.

Un gran problema al usar nuestra bibliografía es el uso del nombre de los autores. Se requirió que los nombres fuesen transcritos de todos aquellos idiomas que emplean un alfabeto diferente al romano. De todas maneras, diferentes esquemas de transcripción producen a menudo una multiplicidad en el deletreo del mismo nombre del autor en el alfabeto romano. Hasta donde pudimos darnos euenta, nos esforzamos por seleeejonar el nombre del autor más freeuentemente utilizado o el deletreo más eonocido en lugar de mencionar el mismo autor en varios lugares. Relacionado eon este problema eneontramos el uso deliberado de muchos diferentes nombres por el mismo autor. Para minimizar este problema nosotros escribimos el nombre completo del autor cuando nos fue posible.

Todo el personal que asistió a los autores de la obra fueron multilingües. Idiomas primarios incluyen: ingles, alemán, español, mandarín y eantonés. Los idiomas secundarios del personal incluyen: francés, portugués, italiano, ruso, polaco, checoslovaeo, danés, sueco, noruego y japonés.

Cuando se inició el proyecto, la computadora (DEK LSI 11/23) v el servicio de imprenta nos impusieron eiertas limitaciones con las euales nos vimos obligados a vivir: (1) todos los logotipos requerián del alfabeto romano; las referencias en otro alfabeto neeisitaron de transcripción. (2) Para algunos idiomas es importante el acento diacritico y ciertos signos de puntuación. El costo para fabricar estos signos por si solo hubiera excedido el actual costo de publicación de este volumen. Por esta razón todo simbolo fonéticos y algunos signos de puntuación fueron eliminados a menos que ellos existieran en el logotipo que teníamos disponible. (3) Cuando el proyecto tuvo su inicio, el programa de eomputadora disponible en ese entonces permitía solamente el uso de ocho campos de estudio. aunque esta capacidad de expandio mientras el proyecto avanzaba, en el principio no pudimos alterar esta faceta de la bibliografía.

ÁREAS DE ESTUDIO

En euanto a los artículos que nosotros examinamos, es decir, aquellos que no estaban precedidos por un asterisco (*), colocamos al final de la referencia una o más abreviaciones indicando el tema a tratar en el mencionado artículo. Tuvimos la tendencia de adoptar una línea conservadora a fin de no enganar al usuario. Por ejemplo casi cada uso del nombre de las especies implica una cita de distribución de la misma. De todas maneras, nosotros mencionamos la distribución solumente cuando una localidad definida es dada conteniendo información nueva o útil. A continuación detallaremos información que la obra tratará.

Anatomía (ay).—Artículos que tratan anatomía, morfología, citología, fisiología, histología, genética, nutrición y áreas relacionadas. Bajo esta designación nunca se mencionó información sobre feromones o la naturaleza de sus reacciones químicas.

Conducta (bv).—Artículos que tratan cualquier aspecto del estudio de los feromones (estructura, uso, etc.) son listados en este campo, así como otros aspectos de conducta tales como: su manera de estridulación, conductas de apareamiento, atracciones principales, interacción social, maneras de vuelo y cualquier otro aspecto relacionado.

Control (cn).—Artículos que tienen relación con estudios como: la manipulación artificial poblacional, daños económicos, sistemas de clasificación de riesgos, epidemias, insecticidas, control químico de cultivo, impacto económico, la utilización de los productos forestales aniquilados por los escarabajos, problemas de cuarentena y cualquier tema relacionado con la economía del hombre se menciona en esta campo. No incluye información acerca de predatores, parásitos, control biológico y otros fenómenos naturales que podrían tener efecto en la regulación de la población.

Ecología (ec).—En esta categoría se incluyen todos los artículos que tratan acerca de predatores y parásitos (cualquiera sea su aspecto, incluyendo su anatomía, clasificación, etc.), control biológico, el clima y su efecto, clima y otros factores ambientales y su repercución en la población, agentes y animales portadores de enfermedades, competíción, interacción con los hongos y el efecto de una

población de Scolytidae sobre otra. También se incluye en este campo la manipulación artificial sobre la población usando el control biológico.

Costumbres (hb).—En esta categoría se encuentran los artículos sobre: ciclo de la vida, costumbre, selección del habitat, dinámica poblacional, patrones de colonización de los arboles y fenómenos relacionados.

Distribución (ds).—Artículos que tratan sobre: distribución geográfica, distribución de los hospedadores, la distribución en el tiempo y fauna se detallan aqui. Así como referencias relacionados con cualquier aspecto del estudio de fósiles.

Taxonomía (tx).—Se incluyen artículos que tratan sobre: la nomenelatura, clasificación, elaves para la identificación, descripciones taxonómicas cuando estas constituyen una principal característica del artículo, consideraciones sobre clasificación, filogenía y artículos relacionados. No se mencionan descripciones superficiales halladas en artículos que tienen una orientación económica a menos que incluyan información taxonómica de importancia.

Misceláneas (ms).—Se citan artículos dirigidos a una audiencia no científica. Estos incluyen artículos sobre científicos, revisiones de artículos escritos por otros, todos los artículos que tratan sobre la crianza, laboratorio o equipos y técnicas de computación. También se incluyen artículos que tratan sobre la síntesis de los feromones y artículos de valor dudos o para el verdadero científico.

Hay que anotar que muchos de estos artícu-los tratan varias disciplinas a la vez, es decir, que contribuyen significativamente a dos o más áreas de estudio. En tales casos nosotros lo hemos señalado. Por otro lado un gran número de artículos tienen poco o ningún valor; parece que su única función fue el de imprimir el nombre del autor o mencionar un escolvtido incidentalmente a lo mucho. Usualmente fue una tarea difícil el clasificarlos por no presentar un valor en el campo científico. Desafortunadamente, el investigador ocupa la misma cantidad de tiempo para revisar estos artículos como para revisar los artículos de sumo interés. Un gran número de estos artículos sin valor fueron asignados a la sección misceláneas (ms). Esta sección (ms) así como el título, es adecuado para identificar estos artículos. Otra porción significante de artículos en esta categoría contiene solamente uno o dos registros que caen dentro de la conocida distribución de especies; estos fueron colocados solamente bajo la sección (ds) donde los artículos si presentan algun valor.

Nosotros no intentamos asignar áreas de estudio a ningún artículo que no lo examinamos; muy a menudo el tema del artículo tiene poca o ninguna relación con su título, por lo tanto es posible que su asignación previa pudo haber sido engañosa.

RECONOCIMIENTO

Este volumen es una colección de escritos pertenecientes a otros autores. Apreciamos las contribuciones grandes o pequeñas de cada autor y el esfuerzo que cada uno realizó para desarrollar este aspecto de la ciencia. Hemos recorrido un largo camino al cubrir un lapso de 226 años en este volumen, pero este campo vasto de literatura no representa más que un paso; mucho más queda por hacer. Expresamos sinceros agradecimientos a los miles de colegas que de buena voluntad han enviado copias de ediciones o artículos durante los cuarenta años pasados para nuestros archivos. Estos archivos nos han dado el coraje para emprender este proyecto y llegar al punto en que nos hallamos. Agradecimientos especiales extendemos también a las muchas bibliotecas v su personal por su servicio al procesar una extraordinaria cantidad de pedidos, los cuales muy a menudo tuvieron como guía la más inadecuada referencia que se puede imaginar. Reconocemos las problemas que esto les causó y el esfuerzo heróico realizado para ayudarnos. Este trabajo no hubiese sido completado sin la asistencia de un personal dedicado. El personal del autor principal en Brigham Young University incluye: Deborah (Wong Yan-fong) Allan, Vavene Andersen-Pusey, Jennifer (Hu Ying-li) Bartholomew, Mark W. Bennett, Lois Bobinski, Dorothy D. Chase, Naomi Engle, Rita Farías Espinel, Dr. C. Selby Herrin, John C. Higginbotham, Jar Ying-jua, Antonia Martin Mickelson, Paulette W. Runolfsen, Cynthia C. Ward, v Marlene Wilson. En Ottawa Jennifer Read, Canadian Forestry Service, sirvio

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KEY TO SUBJECT AREAS

- (ay) = Anatomy, physiology, genetics, etc.
- (bv) = Behavior, including all aspects of the study of pheromones.
- (cn) Surveys, manipulation of populations, economic damage, risk-ratings, epidemics, insecticides, chemical or cultural control, economic impact, quarantine; excluded is biological control.
- (ee) = Predators, parasites, biological control, effect of weather and climate, disease agents or vectors, competition, interaction with fungi, interspecific competition.
- (hb) Habits, life cycle, host selection, population dynamics.
- (ds) Geographical distribution, host distribution, faunal lists, all references to fossils.
- (tx) Nomenclature, classification, keys for identification, taxonomic descriptions when those descriptions are a major feature, phylogeny.
- (ms) = Reviews, articles about scientists, laboratory or field techniques, marginal or non-science articles; chemical synthesis of pheromones is identified as (by ms).

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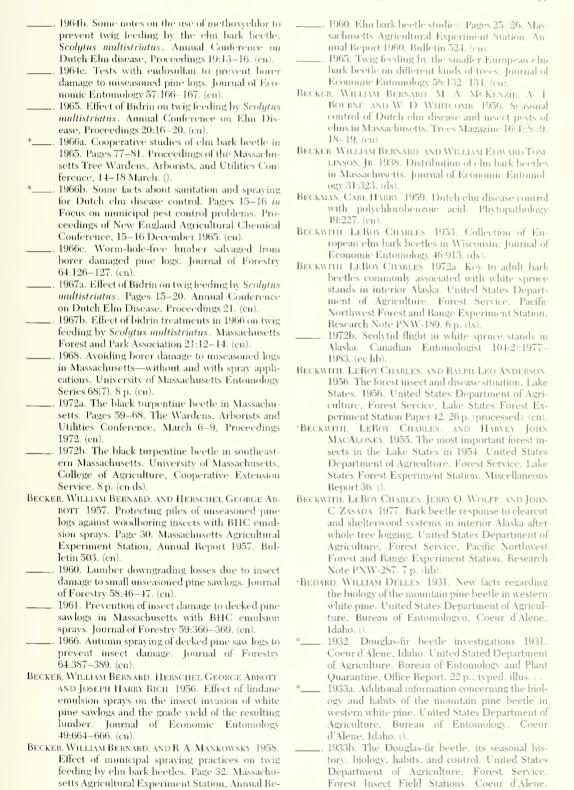
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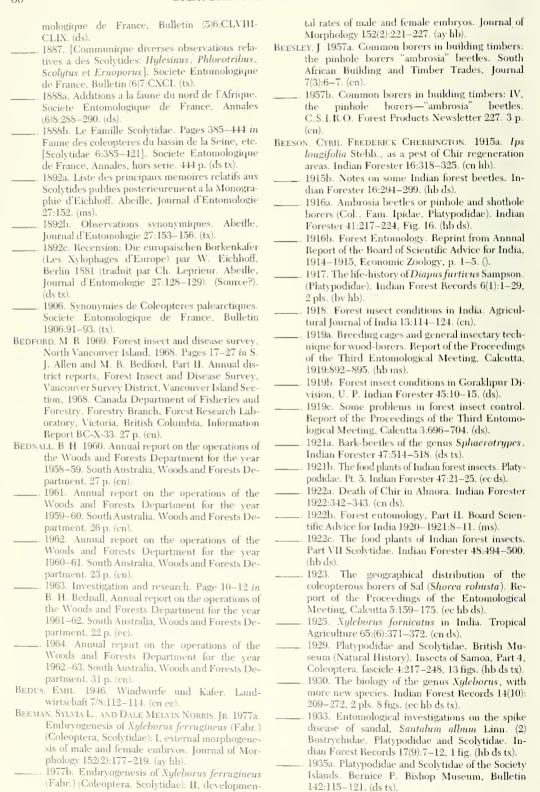
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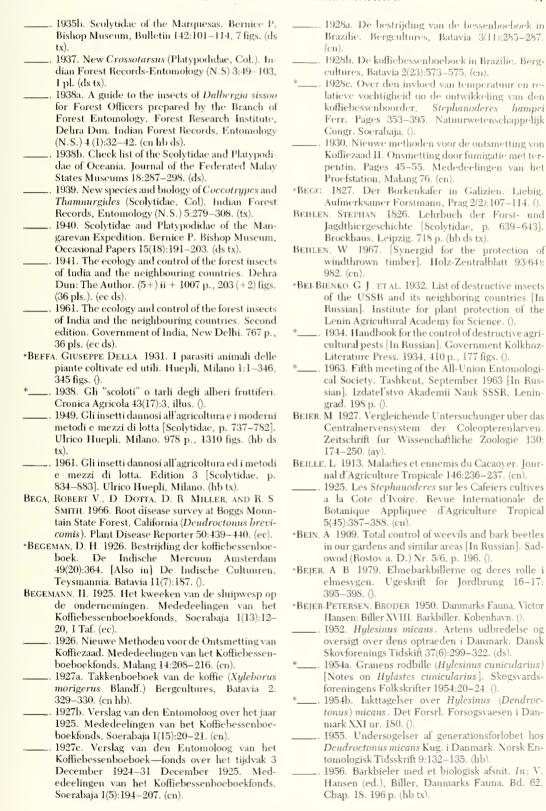
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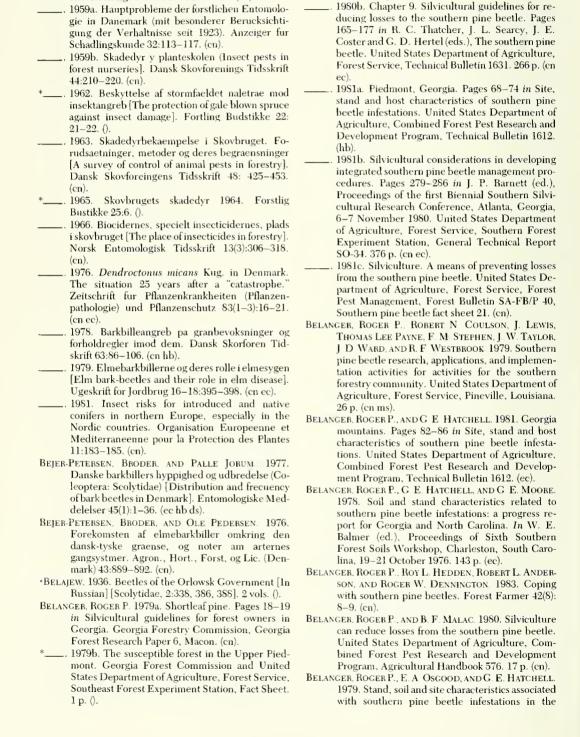
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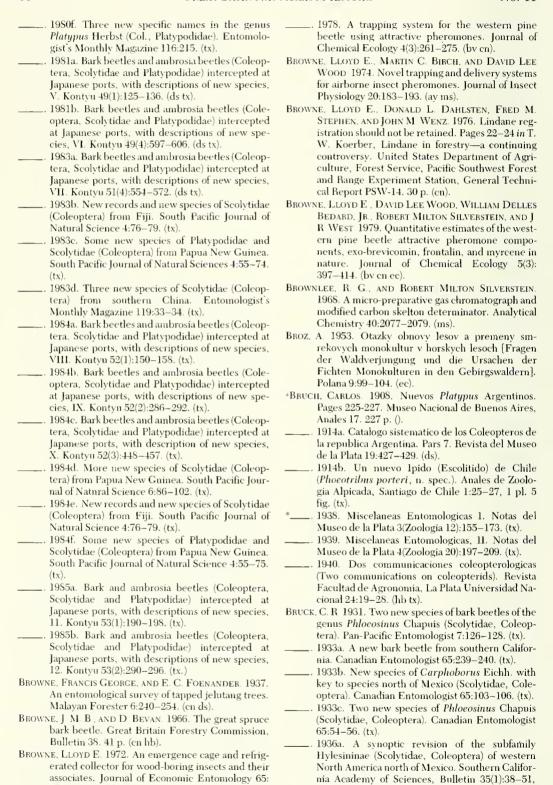
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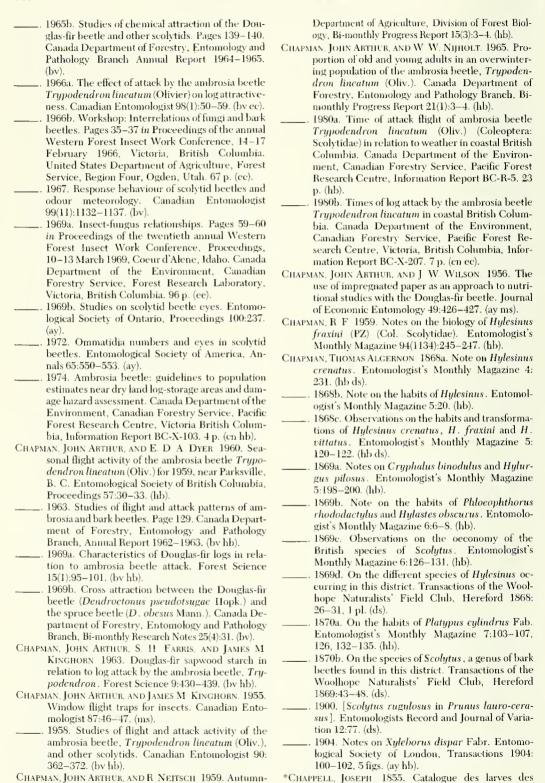
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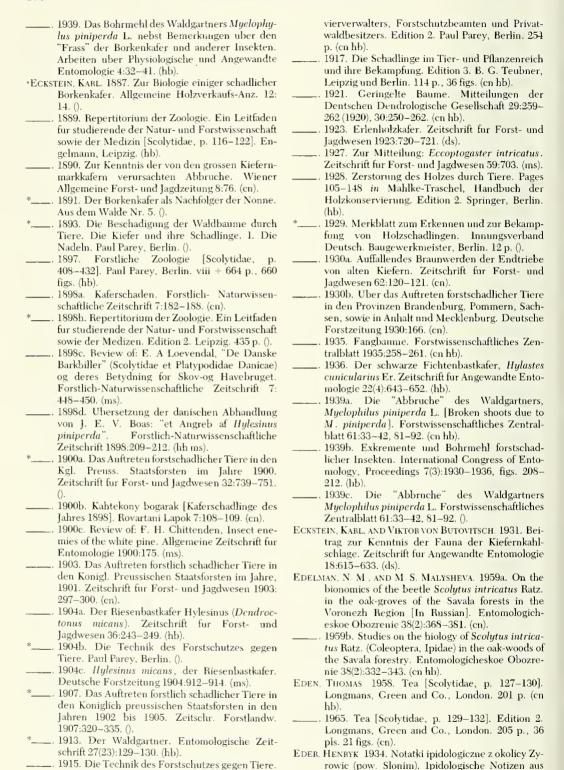
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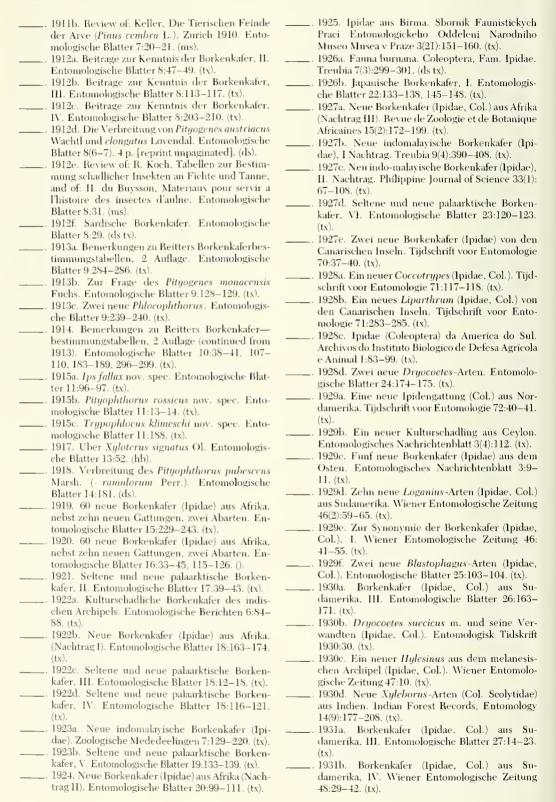
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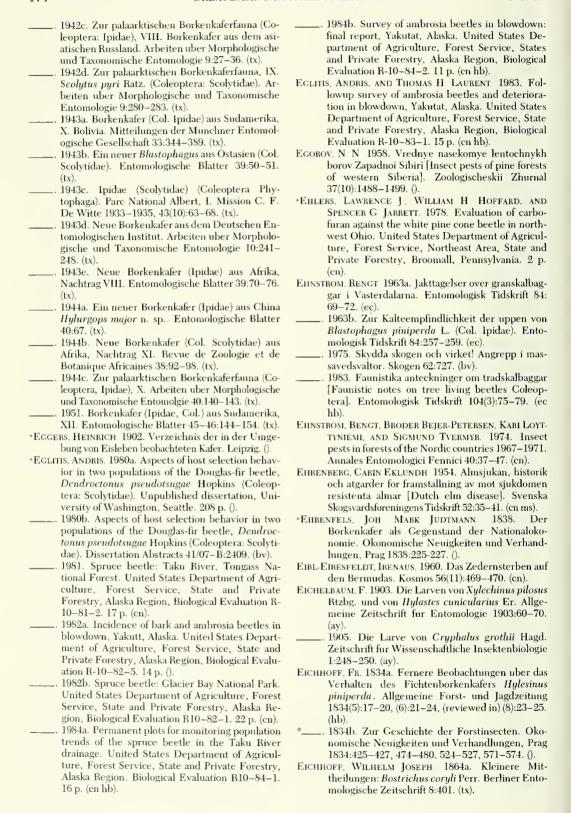
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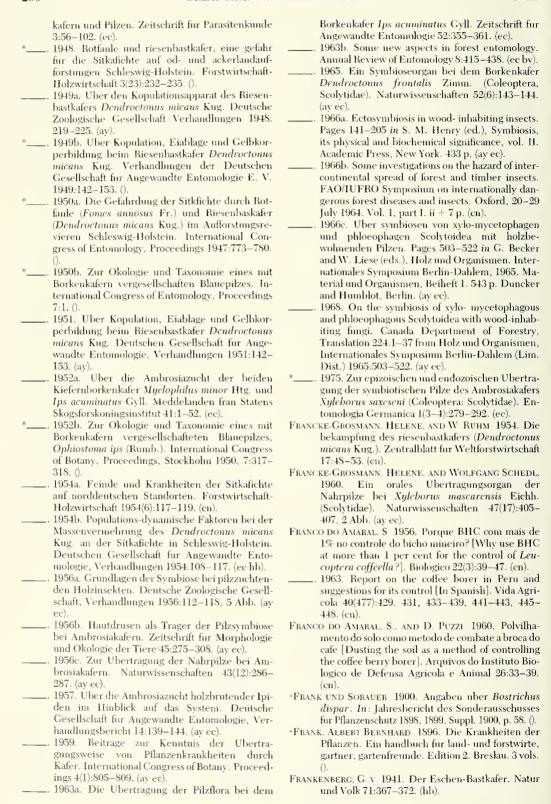
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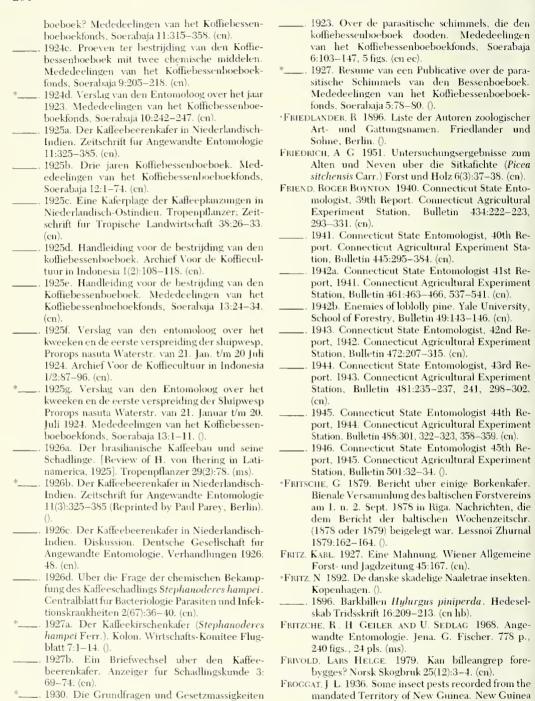
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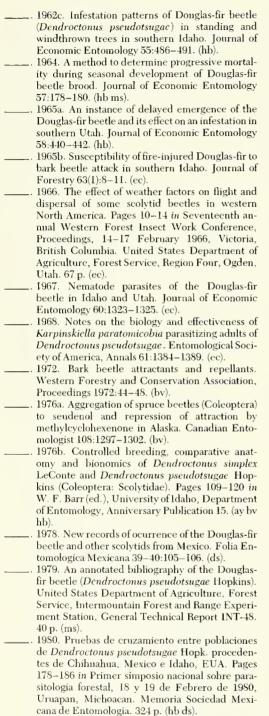
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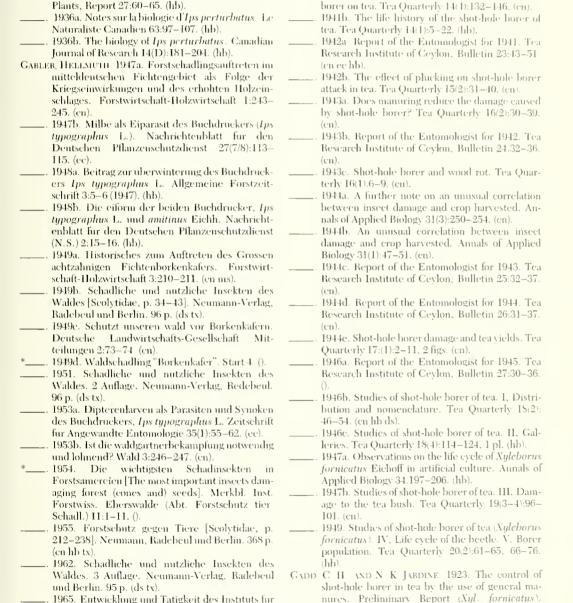
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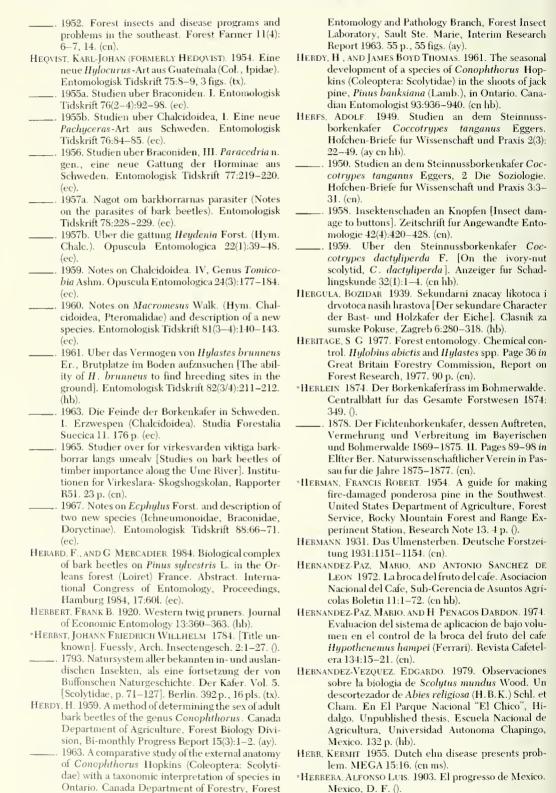
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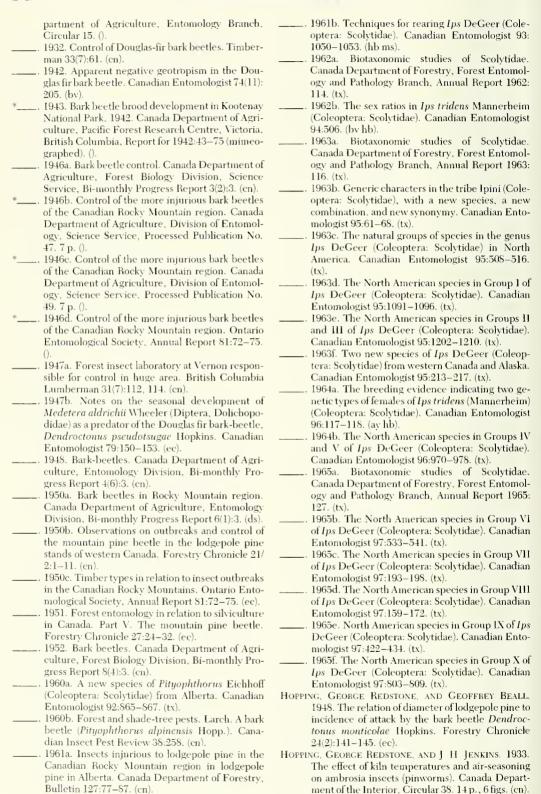
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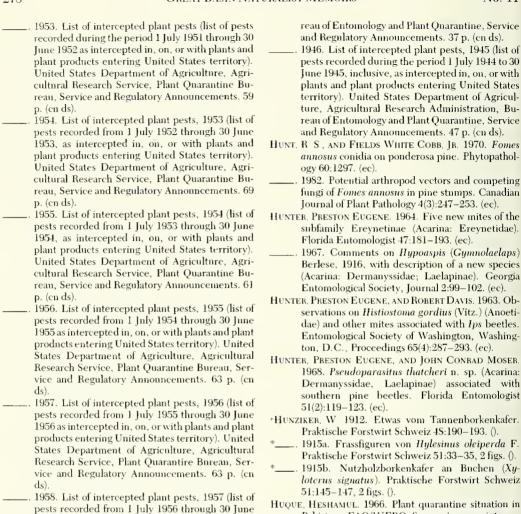
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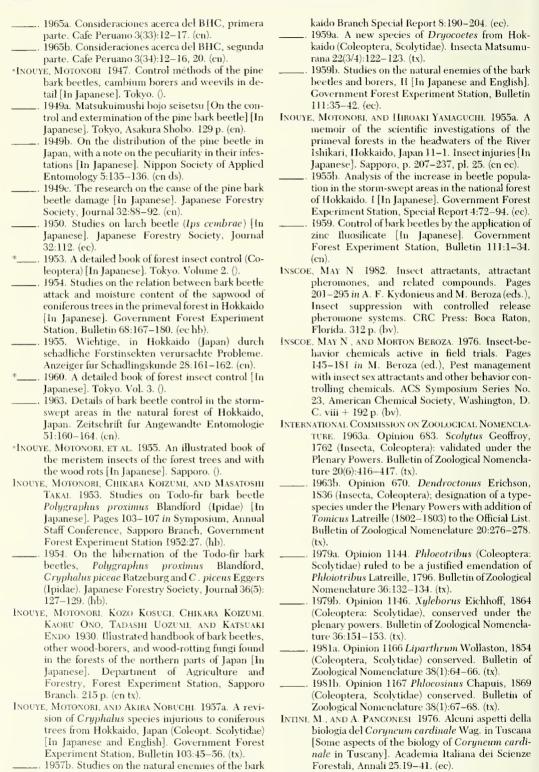
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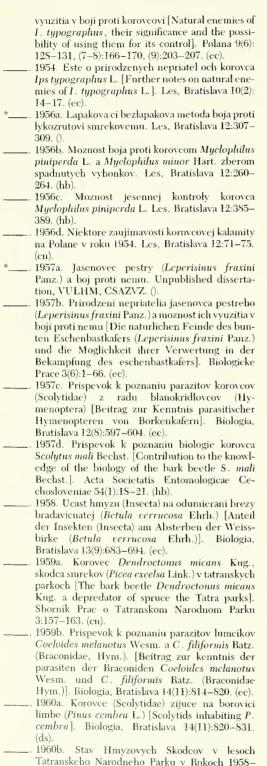
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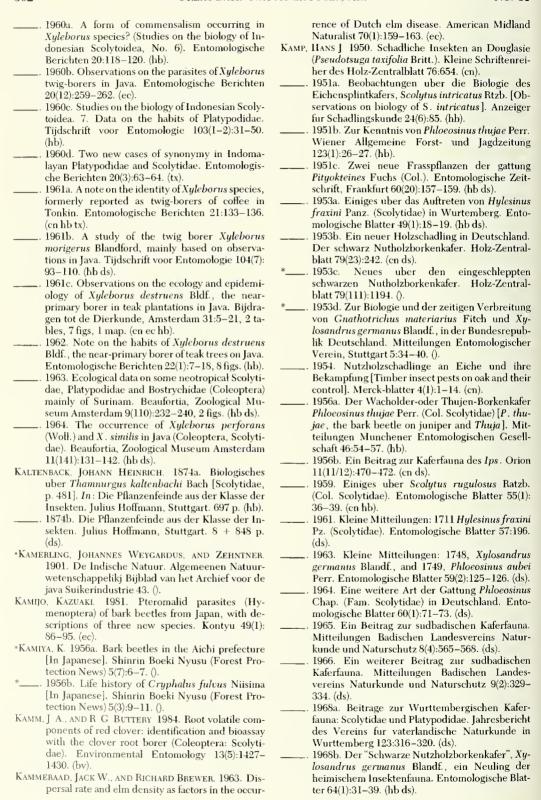
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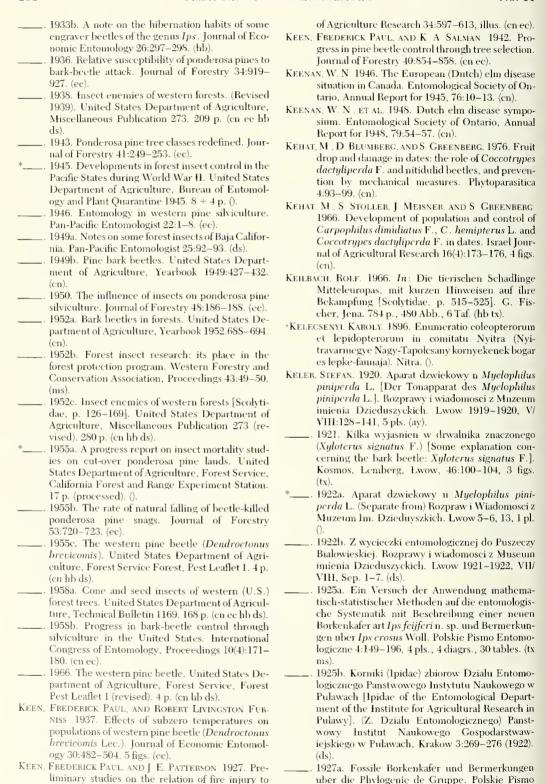
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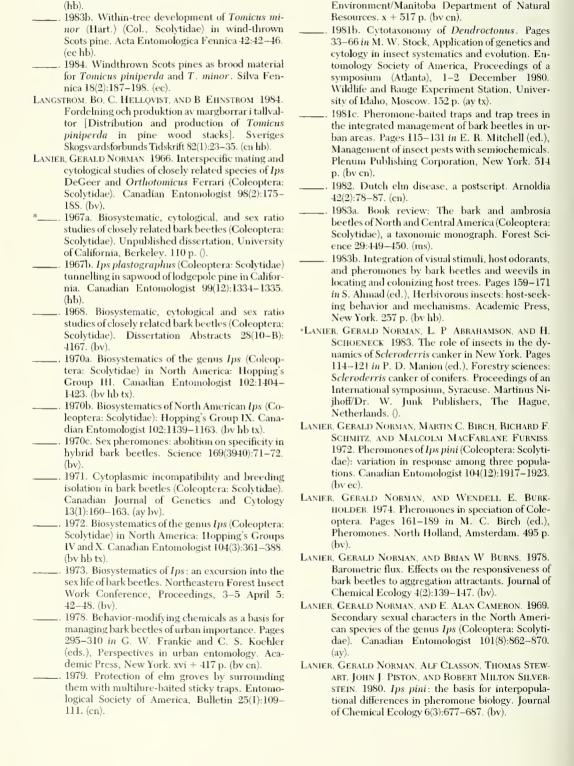
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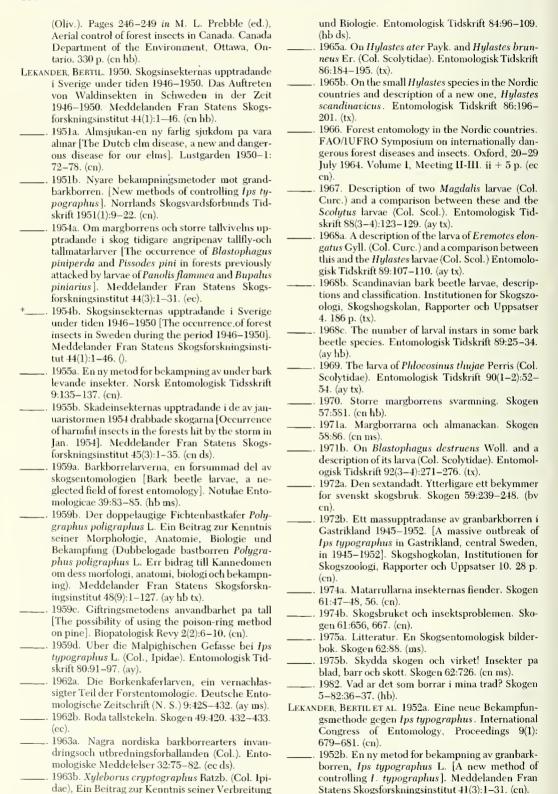
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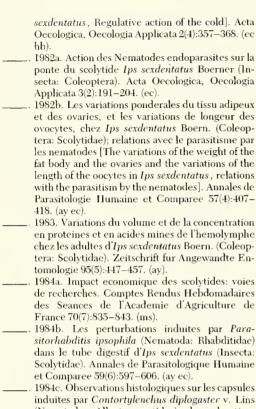
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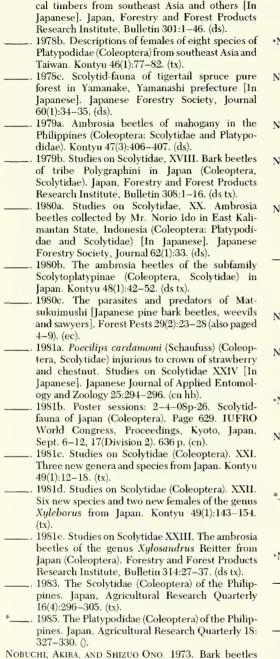
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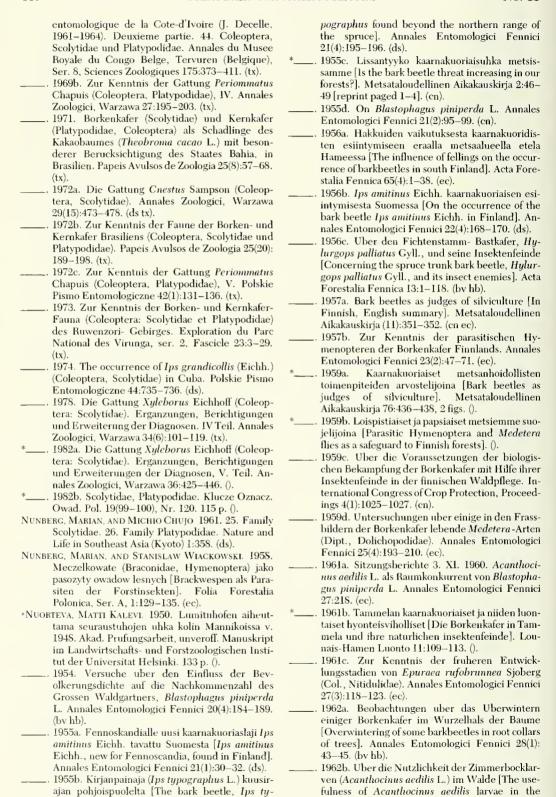
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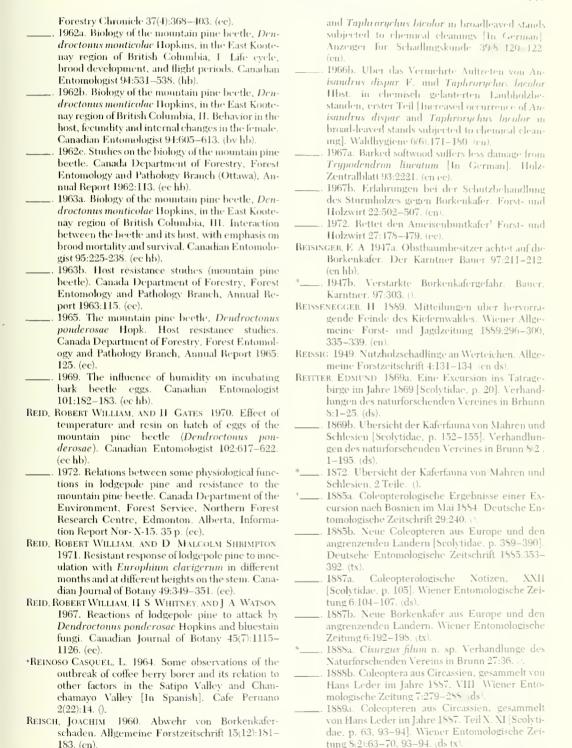
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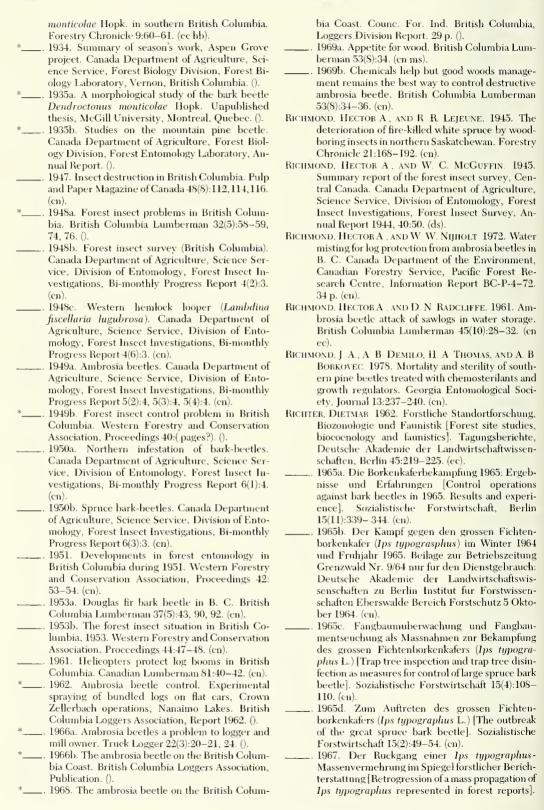
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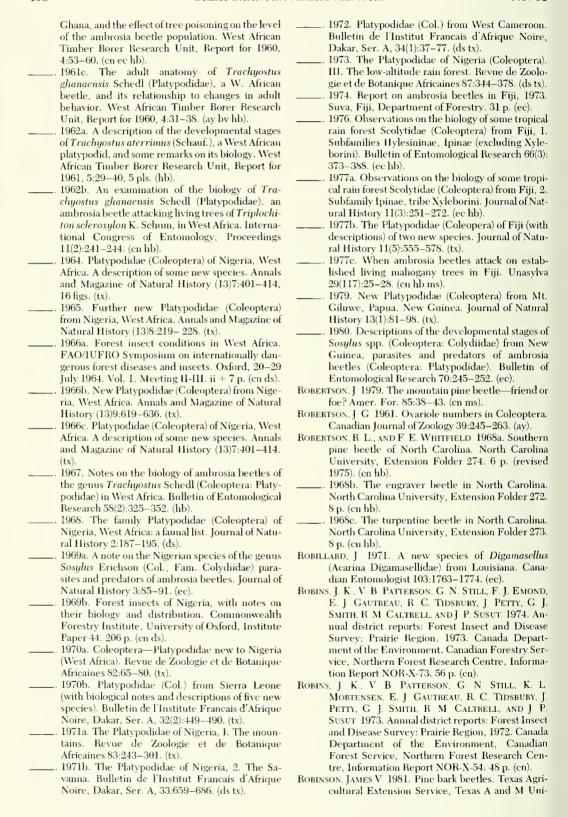
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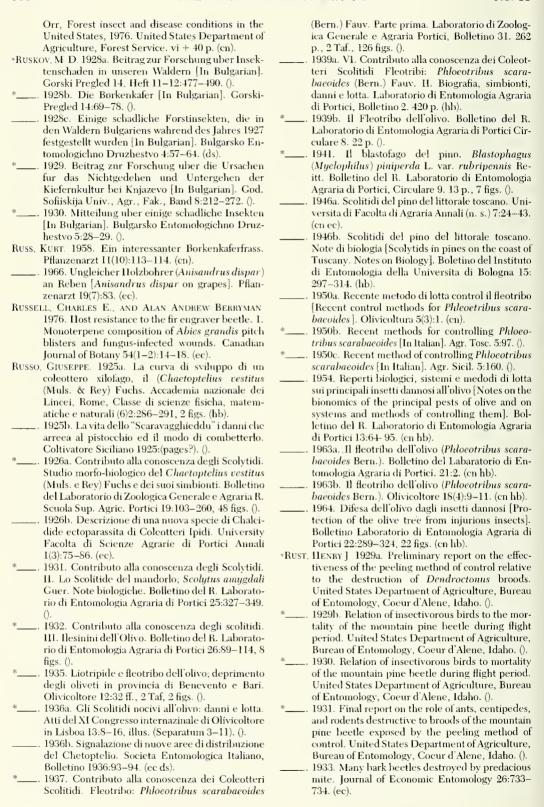
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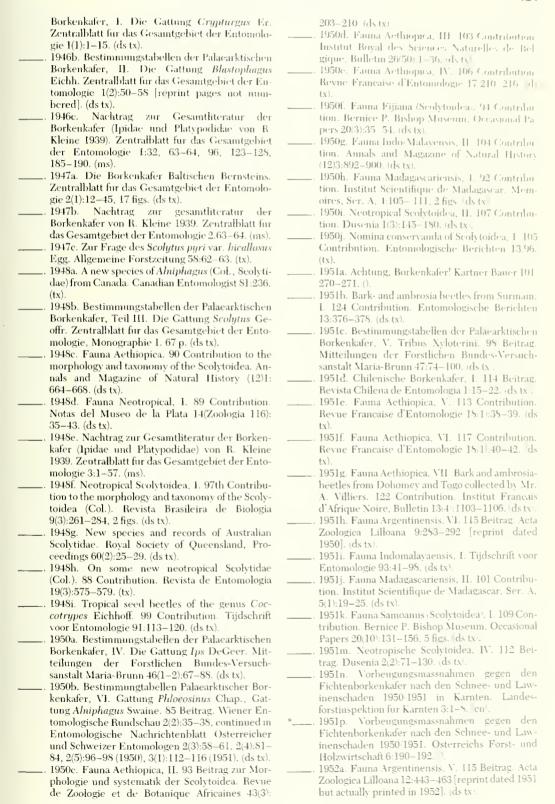
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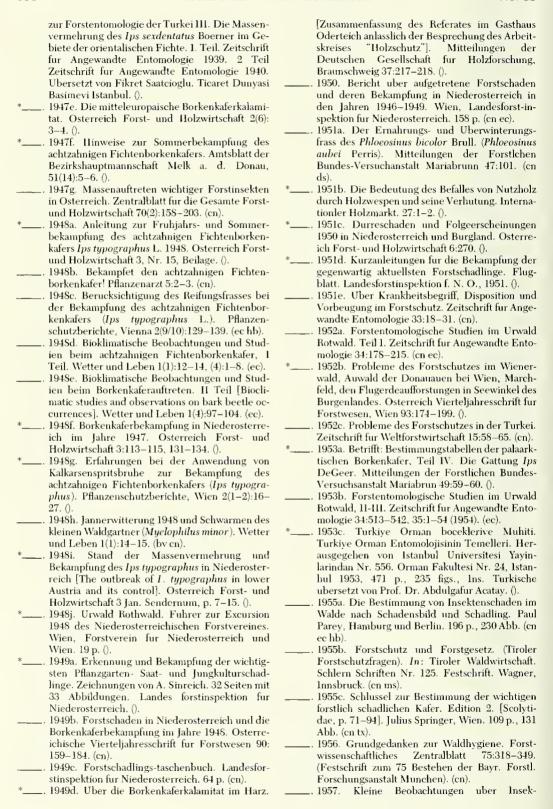
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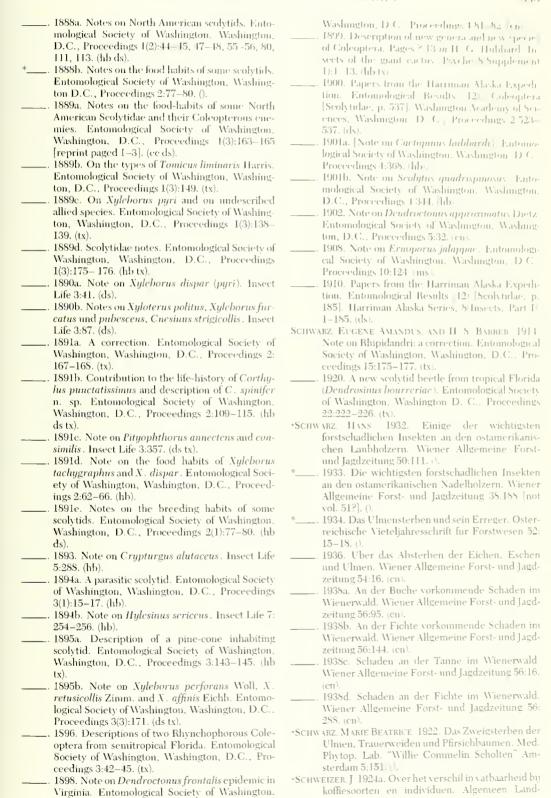
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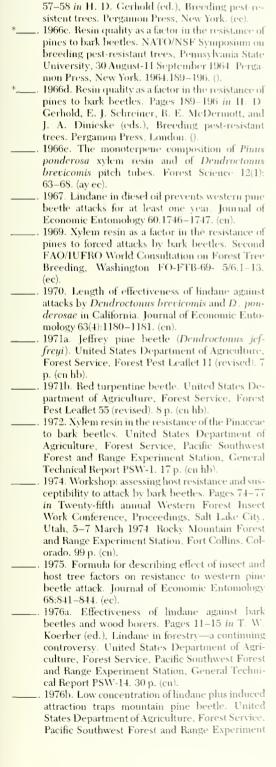
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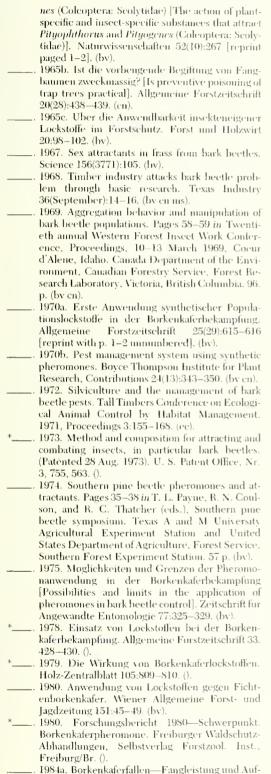
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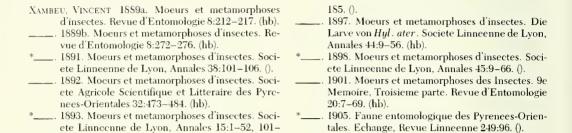
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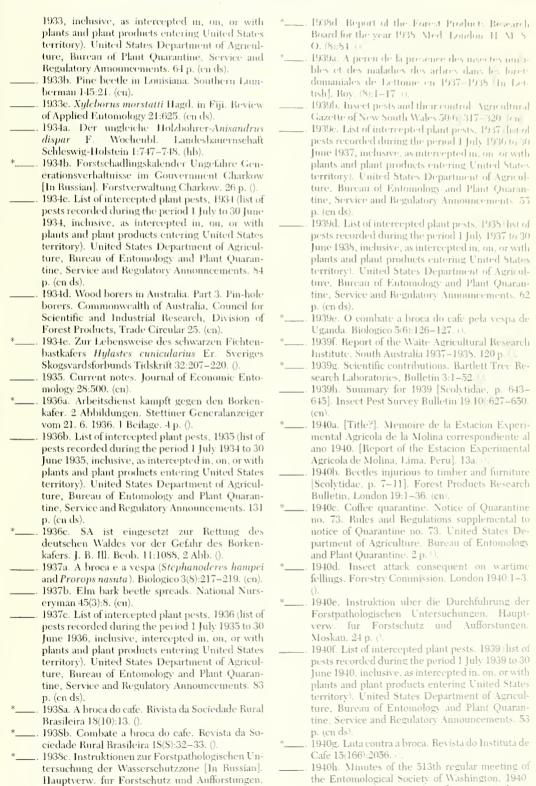
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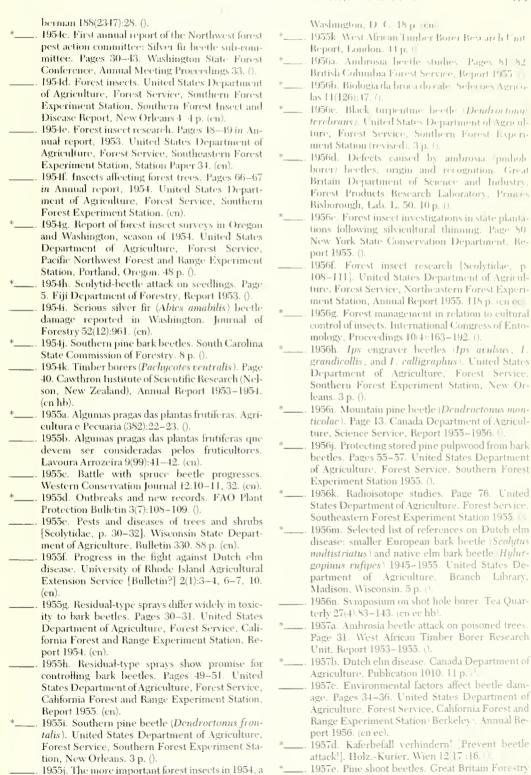
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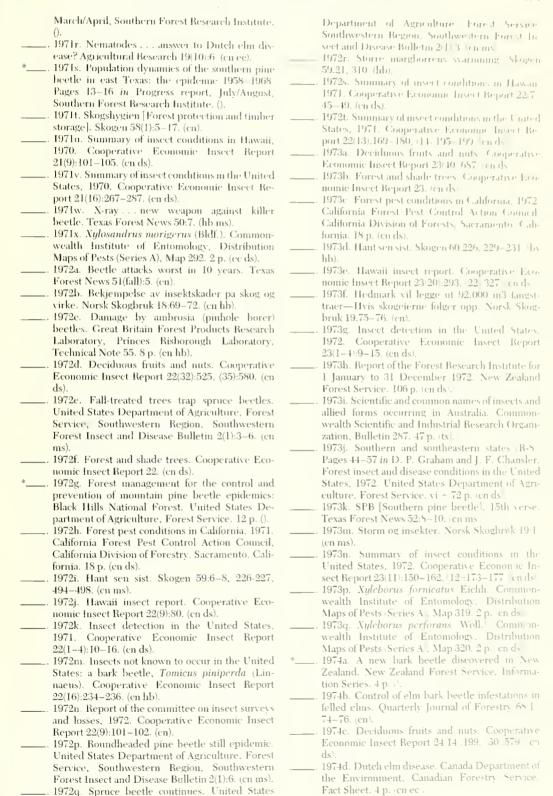
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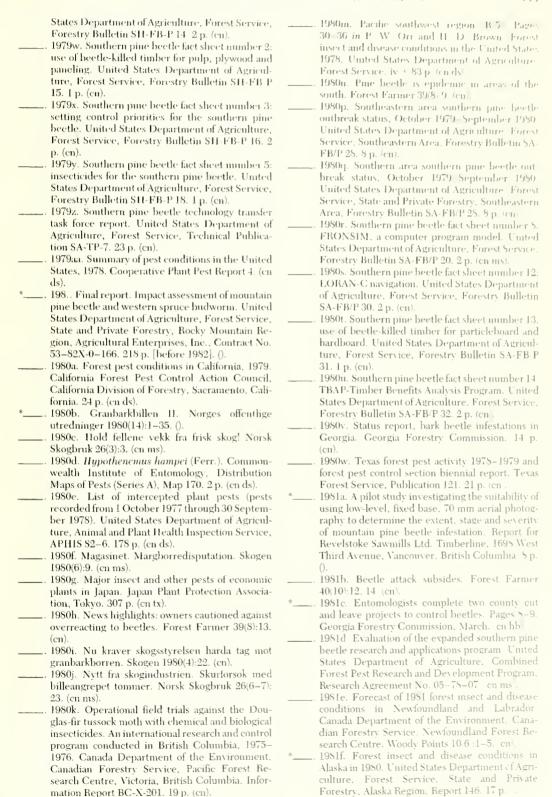
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