

兴林灭螺论文选集

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兴林灭螺论文选集

江泽慧 主编

PROCEEDINGS OF FLOURISHING FORESTS
AND OUT-WIPING ONCOMELANIA

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序

血吸虫病流行于世界 74 个国家和地区，有 2 亿人患血吸虫病，受威胁的人口达 6 亿之多。在中国，日本血吸虫病流行于长江流域及其以南地区，千百年来，我国人民深受血吸虫病危害之苦，曾出现了“千村薜萝人遗矢，万户萧疏鬼唱歌”的凄惨景象。1949 年之后，经过 40 多年的积极防治，我国的血吸虫病防治工作取得了举世瞩目的成就，已有四个省、直辖市、自治区和 203 个县（市）达到消灭血吸虫病的标准，62 个县（市）达到基本消灭血吸虫病标准。目前血吸虫病流行于湖南、湖北、江西、安徽、浙江、云南、四川等八省的 119 个县（市），特别是湖区五省的钉螺孳生面积占全国有螺面积的 95%，感染血吸虫人数占全国的 85%，急性感染人数占全国的 95% 以上。湖区人口稠密，是我国主要商品粮基地之一，湖区血吸虫病的防治是当前血防工作的重点和难点。

由江泽慧，彭镇华教授主持的“兴林灭螺、综合治理与开发三滩”研究项目，运用生态经济学原理，在长江中下游湖区五省的江河洲滩地建立的以防止钉螺孳生为主要目的的各种林农复合生态系统，改善了微观环境，降低了钉螺密度，人群感染血吸虫病的机会明显减少，取得了显著的生态、经济和社会效益，受到湖区五省各级领导和广大群众的高度重视和积极参与，现已形成了六千多公顷的规模。“兴林灭螺”是我国血防工作中涌现出来的新生事物，是综合治理、开发三滩，科学防治血吸虫病的创举，为我国以及世界血吸虫病防治提供了新的经验，“兴林灭螺”项目组全体人员在“八五”期间不辞劳苦，深入疫区进行科学研究，收集了大量的第一手珍贵材料，形成了该文集。兴林灭螺论文集主要包括灭螺与防病、环境与植物、治理与开发、工程与管理等几个主要部分，基本形成了一套滩地综合治理联合开发，科学防治的体系。

该论文选集的出版，必将对我国乃至世界的血吸虫病防治产生深远影响。

袁鸣昌

PREFACE

Schistosomiasis, the snail fever, is now prevalent in 74 countries and regions of the world with 200 million people suffering from this disease and 600 million being threatened. In China Japan Schistosomiasis has been causing great harm along Changjiang River Valley and its south area for thousand years. People there have a long-range time living in misery of snail fever. However, lots of work preventing from and curing of the disease has been conducted for 40 years since 1949. The achievements have attracted worldwide attention. Four provinces municipalities, autonomic regions and 203 counties (cities) have come up to the standard of wiping-out of the snail fever. Other 62 counties (cities) have basically reached the standard. This disease is presently still endangering in 119 counties (cities) of eight provinces: Hunan, Hubei, Jiangxi, Anhui, Jiangsu, Zhejiang, Yunnan and Sichuan. The five provinces in lake area, especially, have already had snail bred area of 95% and blood-fluke infected persons of 85% of the national total related. And the acute infection even surpassed 95%. Since the area is both an area of dense population and an area of one of the main commercial grain bases, the preventing and curing of snail fever in this area is both a focal and a difficult point in current work.

The program of 《Afforesting for wiping out Oncomelania and Schistosomiasis, comprehensive administration and exploitation of the three kinds of beaches》directed by Professor Jiang Zehui and Peng Zhenhua has been carried out in accordance with the ecologic and economic principles so as to establish a combined ecologic system of various agroforestry measures in beaches of mid-lower reaches of Changjiang R. for preventing the breed of Oncomelania. Results are satisfactory. The microcosmic surroundings were improved to decrease snail density and the number of people possibly infected by schistosomiasis, bringing about obvious benefits from ecological, economical, also social improvements. The research and the corresponding achievements are newly emerging affairs in the study of Schistosomiasis prevention. The measure involved in the program is a pioneering work in the comprehensive administration and exploiting of "three kinds beaches" and in the scientific prevention and curing of the schistosomiasis. The related experience is new and valuable. Members in the program made nothing of hardships in

the period of "8. 5" for conducting the study, plunged into the epidemic area and collected a mass of first hand material. These are great deeds. Therefore, a good system of beach comprehensive administration, co—exploitation, and scientific preventing—curing has been established.

The coming out of the 《Proceedings》 is of undoubtedly profound and lasting significance to both China and the world in preventing and curing Schistosomiasis.

Professor Yuan Hongchang

前 言

兴林灭螺、综合治理、开发“三滩”是林业部、卫生部联合下达的“八五”重点科研课题，旨在为我国血吸虫病严重流行区——长江中下游湖区五省江湖洲“三滩”的血吸虫病防治摸索出一条治病与治穷相结合的有效途径。该项目运用生态经济学原理，采取以林为主，林、农、副、渔等有机结合的举措，对“三滩”进行综合治理和综合开发。研究的主要内容有：有螺滩地林、农、渔等复合生态系统的营建技术，复合系统内生态因子的变化，螺、病情消长规律，钉螺生理生化，滩地杨树等林木生长规律，滩地主要造林树种的木材解剖性质及材性，“兴林灭螺”的综合效益，枫杨、乌桕等物种对钉螺孳生的影响以及项目管理和珍贵物种的开发利用等十个方面。

五年来，在林业部、卫生部以及湖区五省各有关部门的高度重视和大力支持下，经课题组全体人员的共同努力，较好地完成了科研任务，已获得数项科研成果。专家们认为“兴林灭螺、综合治理、开发三滩”为灭螺防病走出了一条新路，具有较强的科学性、创造性、实用性和可操作性，有些成果处于国内外领先水平。该项目在研究的同时，做了大量的推广工作。至1994年11月底，共建立试点16个，实施推广面积52.5万亩，取得了良好的灭螺防病效果及经济和生态效益。

为向各级部门汇报该项目几年来所做的工作，总结“八五”期间该项目的成绩与经验，推动该项目的深入研究和成果的推广应用，特编此文集。文集收集了“八五”期间的多项研究成果及撰写的论文，内容较为新颖，资料较为丰富。该文集分为灭螺与防病、环境与植物、治理与开发、工程与管理等四篇，另附研究进展，并由卫生部原副部长杨纯题词，卫生部血吸虫病专家咨询委员会主任袁鸿昌先生作序。

在此文集即将出版之际，谨对本项目给予热忱关心和大力支持的林业部、卫生部有关领导，林业部综合计划司、科技司、卫生部地病司，湖区五省的有关领导和部门以及课题组全体成员，表示崇高的敬意和最真诚的感谢。

本文集为“八五”期间阶段性成果，有些研究尚待进一步深入，诚请以上有关领导和部门在今后的工作中能继续给予关心和帮助。

由于时间仓促，不足之处难免，敬请批评指正。

江泽慧

FOREWORDS

Flourishing forests and out-wiping *Oncomelania* through comprehensive administration and exploitation of the "three kinds of beaches" was a big and focal "8. 5" program of scientific research jointly issued by Forestry Ministry (FM) and Public Health Ministry (PHM). The program was for the purpose of searching an efficient way for curing the disease and poverty in the severe snail fever (the schistosomiasis) areas of river-lake beaches along the mid-lower reaches of Changjiang River. The program was conducted in accordance with ecologic-economic principles, taking afforestation as dominant measure. Combination of forestry with agriculture, sideline, and fishery proved to be efficient in synthetically governing and exploiting the troublesome "three kinds beaches". Main research content includes 10 aspects: Techniques for building up a complex ecologic system of agroforestry and fishery for snailed beaches; change of the ecologic factors in the system; principle of the growth and decline of *Oncomelania* and Schistosomiasis; physiology and biochemistry of *Oncomelania*; growth principle of poplar in the related beaches; dissection properties and quality of major wood species grown in the beaches; the synthetic profits from the flourishing of forests and out-wiping of *Oncomelania*; influence of maple and Chinese tallow tree on snail breed; and program management and the exploitation and utilization of rare-treasure plants and animals.

Being energetically supported by FM and PHM and the departments concerned, the whole members of the program made joint efforts, well accomplished the mission in the past 5 years, achieving a lot of scientific results. As approved by related experts, a new and efficient way was found through flourishing forests and outwiping *Oncomelania*, comprehensive administration, and exploiting the "three kinds of beaches". These results are of scientific, creative, practical and operative significances, and are in the lead at home and abroad. Besides, popularization was simultaneously carried out. Sixteen experimental locations have been established by the end of November, 1994, and extended an area of 0.525 million mu (35-thousand hectares), gaining pretty good benefits snail out-wiping and disease preventing as well as ecologic-economic administration.

In order to report the accomplished work to departments concerned and summarize the achievements and experiences from the program carried out in these years so as to extend and utilize the obtained results, this 《Proceedings》 was compiled, which collects excellent papers written for the related research in "8. 5". Contents in the 《Proceedings》 are new and fruitful. Four sections were arranged with *Oncomelania* out

—wiping and Schistosomiasis prevention, environment and plants, administration and exploitation, and project and management in the 《Proceedings》, and with research progress as an appendix. An inscription made by Yang Chun, the late vice minister of PHM, and a "Preface" written by Yuan Hongchang, the chairman of Schistosomiasis Expert Committee, PHM, are arranged in the front pages of the 《Proceedings》.

The 《Proceedings》 will provide useful references for individual and department working on schistosomiasis prevention and forestry. Just when the 《Proceedings》 is to be published, sincere thanks and heartfelt respects are presented to directors of the Forestry Ministry and the Public Health Ministry, and to Comprehensive Programming Department and Science and Technique Department of Forestry Ministry, to Local Disease Department of Public Health Ministry, also to leaders and offices of the five provinces concerned for their energetic and all—round support. Many thanks are also presented to program members for their hard and outstanding work from start to finish.

Further work should be conducted to follow and replenish the "8. 5" program. Support and attention from departments concerned are needed.

Inadequacy of the work is hard to avoid. We are looking forward to having comments and opinions.

Professor Jiang Zehui

目 录

题词	杨 纯
序	袁鸿昌
PREFACE	Yuan Hongchang
前言	江泽慧
FOREWORDS	Jiang Zehui
兴林灭螺、综合治理、开发三滩研究	彭镇华 (1)

灭螺与防病

1. 江滩钉螺种群的数学模型	江泽慧 成安生 汪思明 彭旦明 任海青 (17)
2. 林农复合系统灭螺机制及其持续灭螺	姚永康 张旭东 彭镇华 康忠铭 孙启祥 (23)
3. “兴林灭螺”试点血吸虫病疫情研究	汪柏庆 杨卫平 (32)
4. 江滩芦苇地区毁芦兴林消灭钉螺的研究	王又槐 柯遵和 陈枚亚 董小华 陈春和 王希平 李荣连 (40)
5. 垸外湖洲植树造林降低血吸虫病传播的研究	卜开明 吴昭武 石中谷 刘启立 张志刚 何志辉 (45)
6. 君山农场江滩造林与血吸虫病流行病学研究	吴立勋 程政红 陈双武 刘 琬 吴昭武 卜开明 (49)
7. “兴林灭螺”工程对江滩钉螺生存影响研究	张家楷 宋鸿焘 李龙根 陆崇璋 满加臣 刘珠春 (54)
8. 红星江滩钉螺分布和密度变化研究	查 明 王成龙 何结保 邵必应 (58)
9. 江苏省邗江县“兴林灭螺”试点螺情消长研究	肖民生 朱济民 王裔林 吴晓波 (62)
10. 草滩钉螺分布格局的研究	张旭东 姚永康 孙启祥 项 艳 (66)
11. 滩地林下草本植物演变及钉螺分布格局的研究	张家来 刘立德 洪 石 熊晓姣 郑兰英 刘友明 余炎生 李保红 於凤安 (72)
12. 兴林垦种影响江滩钉螺生存机制的研究	张家楷 宋鸿焘 李龙根 梁幼生 (80)
13. 枫杨、乌桕对钉螺毒性的研究	彭旦明 周光雄 马珠 宋友昕 彭镇华 彭卫平 (84)

14. 江滩与兴林垦种区钉螺氨基酸总蛋白和糖元含量的比较 彭卫平 彭旦明 於凤安 彭镇华 (90)
15. 江滩与兴林垦种区钉螺体内几种酶活性的比较 彭卫平 彭旦明 於凤安 彭镇华 (95)
16. 钉螺转氨酶碱性磷酸酶活力研究 彭旦明 彭镇华 彭卫平 杨华英 (100)

环 境 与 植 物

1. 有螺滩地林农复合生态系统的建立及其效果分析 彭镇华 孙启祥 康忠铭 姚永康 (105)
2. 滩地杨树栽培技术 康忠铭 张旭东 孙启祥 (113)
3. 江滩杨树造林技术措施和发展潜力 林伯颜 刘贵阳 金同芬 戴日千 凌振武 丁翠柏 张炳武 毛学政 (120)
4. 黑杨派南方型无性系江滩立地质量评价的研究 吴孟鏊 林伯颜 刘贵阳 张炳武 金同芬 陈 浩 丁翠柏 王学武 (129)
5. 公安县江滩森林立地质量评价与应用的研究 易长权 章金平 章 杰 陈昌银 张家来 刘立德 (138)
6. 长江滩地不同品系杨树生长规律的研究 张旭东 杨晓春 项 艳 (146)
7. 滩地林农复合生态系统对水淹环境的适应反应 张家来 熊晓姣 洪 石 刘立德 郑兰英 刘友明 余焱生 李保红 冯延寿 於凤安 (151)
8. 滩地水分因子对 I—72 杨生长的影响 毛学政 陈兴荣 周永祥 杨志生 (159)
9. 长江中下游外滩人工林光能条件及其利用 姚永康 孙启祥 张旭东 (165)
10. 滩地杨树叶片气孔导度和蒸腾速率的研究 张旭东 孙启祥 姚永康 (177)
11. 桑天牛成虫行为及雄虫辐射不育的研究 彭镇华 王善武 崔应时 (182)
12. 湖南杨树天牛及其防治研究 张贤开 尹世才 (187)

治 理 与 开 发

1. 长江中下游滩地和低丘陵地水杉木材性质的研究 江泽慧 费本华 王朝辉 (197)
2. 池杉木材解剖性质和物理性质及其变异的研究 江泽慧 费本华 罗真富 (203)
3. 以生态经济原理综合治理和合理开发升金湖 彭镇华 孙启祥 (211)
4. 沿江滩地重要造林树种木材物理力学性质研究 费本华 任海青 江泽慧 (216)
5. 沿江丘陵地区重要造林树种木材物理力学性质研究 费本华 任海青 江泽慧 (221)
6. 江滩林农复合生态系统综合效益的评价 张家来 刘立德 洪 石 郑兰英 熊晓姣 刘友明 於凤安 (226)

7. 长江滩地资源综合开发效益协调发展评估 陈放鸣 徐向宇 李 纯 (234)
8. 长江中下游滩地林农复合生态系统经济研究与设计 陈放鸣 李 纯 (241)
9. 沅江拐棍洲兴林灭螺综合开发试验研究
..... 吴立勋 程政红 徐世凤 肖国华 彭光裕 (248)
10. 松滋县王家大湖兴林灭螺综合效益分析
..... 湖北省松滋县“兴林灭螺”项目协作组 (253)
11. 滩地造林综合效益研究 徐世凤 吴立勋 肖国华 邓大清 高德维 (261)
12. 升金湖滩围网养鱼试验 鲍传和 姚永康 韦 众 (266)

工程与管理

1. 关于“兴林灭螺”工程的总体思路 彭镇华 (273)
2. “兴林灭螺”指导思想及造林技术研究 彭镇华 康忠铭 (276)
3. 重大科技成果转化机制研究
..... “长江中下游低丘滩地综合治理与开发”项目组
..... “以林为主、灭螺防病、综合治理、开发三滩”项目组 (287)
4. 跨地区国家级重大项目管理体制研究 “兴林灭螺”项目组 (291)
5. 坚持“四位一体”，抓好“两项目”管理 张玉石 林刚石 (297)
6. 坚持把“六个结合”融为一体，搞好“兴林灭螺”项目管理 漆根深等 (301)
7. “兴林灭螺”工程实施与管理 桂林楠 (306)

研究进展

1. 河豚的研究与开发 彭镇华 刘恩生 姚永康 鲍传和 韦众 (313)
2. “兴林灭螺”综合治理开发湖洲模式及效益分析 廖金陵 (317)
3. 南埂害虫调查防治研究
..... 彭镇华 王善武 崔应时 康忠铭 孙启祥 姚永康 (321)
4. 滩地养鸭与钉螺分布密度关系的探讨
..... 朱济民 马玉才 余国林 肖民生 杨志生 张正林 (324)

Contents

Inscription	Yang Chun
Preface	Yuan Hongchang
Forewords	Jiang Zehui

Flourishing Forests and Out-wiping Oncomelania Through Comprehensive Adminastration and Exploitation of the " Three Kinds of Beaches"	Peng Zhenhua (1)
---	------------------

Oncomelania Out-wiping and Schistosomiasis Prevention

1. A Mathematical Model for the Population of Oncomelania Species on the River Beach	Jiang Zehui et al. (17)
2. Mechanism of Oncomelania Controlling In Forest—agrosystem and Its Persistence	Yao Yongkang et al. (23)
3. Investigation of Schistosomiasis Condition in " Flourishing Forests and Out-Wiping Oncomelania" Experimental Spots	Wang Beiqing et al. (32)
4. Study on Snail Control by Reforestation after Destroying Reeds on River Beach	Wang Youhuai et al. (40)
5. Influence of Aforestation in Lake Beaches on the Decrease of Snail Density and the Frequency of Snail fever in Local People	Po kaiming et al. (45)
6. Study on Refforestation in Beaches of Changjiang River and Schistosomiasis Epidemic Disease	Wu Lixun et al. (49)
7. Effect of " Flourishing Forests and Out-wiping Oncomelania" Project on the Survival of Beach Schistosomiasis	Zhang Jiakai et al. (54)
8. Change of Disribution and Density of Snail on Beach Land at Hongxing	Za Ming et al. (58)
9. Study on the Growth and Decline of Oncomelania snail controlled by Reforestation on Beach Area	Xiao Mingshen et al. (62)
10. Studies on snail Distribution Pattern on Herb Beach Land	Zhang Xudong et al. (66)
11. The Evaluation of Comprehensive Benefits of Agroforestry Ecosystems in Beaches of Chang jiang River	Zhang Jialai et al. (72)

12. Influence of Flourishing Forests and Reclamation on the
Survival Mechanism of Beach *Oncomelania* Zhang Jiakai et al. (80)
13. Study of the Toxin of the *Sapium Sebiperum* and *Pteracrya*
Stenoptera on *Oncomelania* growth Peng Dangming et al. (84)
14. Comparison of Enzymatic Activity of Snail (*Oncomelania hupensis*) from
River Beach and Beach Agro-forestry Systems Peng Weiping et al. (90)
15. Comparison of Protein, Amino Acid and Glycogen Contents of Snails,
Oncomelania hupensis from River Beach and from Beach Agroforestry
Systems Peng Weiping et al. (95)
16. The GOP, GPT and ALP Activity of Snail Peng Dangming et al. (100)

Environment and Plants

1. Establishment of Agroforestry Ecosystem on Snail Beaches and its
Benefits Analysis Pang Zhenhua et al. (105)
2. Techniques for Planting Poplar in River Beach Kang Zhongming et al. (113)
3. Techniques of Afforestation on River Beaches and its Perspects
..... Lin Boyan et al. (120)
4. The Evaluation of Stand Quality for Poplars in River Beaches
..... Wu Mengyong et al. (129)
5. The Evaluation of Stand Quality for the River Beach Trees in
Gongan County, Hubei Province Yi Changquan et al. (138)
6. Growth Rule of Five Strains of Poplar in the Shoal of Middle
and Low Reaches of Chanjiang River Zhang Xudong et al. (146)
7. Adaptation of River Beach Agroforestry Ecosystem to Flood
..... Zhang Jialai et al. (151)
8. Flood Effects on Poplar Strain I—72 Growth in River Beaches
..... Mao Xuezheng et al. (159)
9. The Condition and Utilization of Light by Artificial Forest in
Beaches of Mid-lower Reaches Yao Yongkang et al. (165)
10. Study on Leaf Stomatal Conductivity and Transpiration Rate
of Poplar on Beach Land Zhang Xudong et al. (177)
11. Study on Behaviours of *Aprione Germaric* Imago and Radiation
Sterility of the Male Imago Peng Zhenhua et al. (182)
12. Poplar Longicorn in Hunan Province and its Control
..... Zhang Xiankai et al. (187)

Administration and Exploitation

1. The Wood Anatomical and Physical Properties of *Metasequoia Glyptostroboidea* Jiang Zehui et al. (197)
2. Wood Anatomical and Physical Properties of *Taxodium ascendens* Jiang Zehui et al. (203)
3. Comprehensive Management and Exploitation of Lake Shengjin Based on Principles of Eco-Economics Peng Zhenhua et al. (211)
4. Wood Physico-Mechanical Properties of Main Trees in Beaches Along Changjiang River Fei Benhua et al. (216)
5. Wood Physico-Mechanical Properties of Main Trees on Hills Along Changjiang River Fei Benhua Jiang Zehui (221)
6. The Evaluation of Comprehensive Benefits of Agroforestry Ecosystems in Beaches of Changjiang River Zhang Jialai et al. (226)
7. Assessment on Coordinate Development of Comprehensive Effects of Beach Land Exploitation along Changjiang River Chen Fangming et al. (234)
8. A Economical Study and Design on Agroforest Compound Ecological System on Beach Land along Changjiang River Chen Fangming et al. (241)
9. Study on Reforestation on Beach of Changjiang River and Preventing Schistosomiasis Epidemic Disease Wu Lixun et al. (248)
10. Comprehensive Benefits of Snail Control by Afforestation in Songzi County, Hubei Xu Shifong et al. (253)
11. Study on the Comprehensive Benefit from Reforested Beach Land Xu Shifong et al. (261)
12. The Experiment of Pisciculture with Purse Seine in Shengjin lake Beach Bao Chuanhe et al. (266)

Project and Management

1. On the General Idea about the Engineering of *Oncomelania* Elimination and Schistosomiasis Control Peng Zhenhua (273)
2. Principles and Techniques for Setting Reforestation as Dominant Measure to *Oncomelania* Elimination and Schistosomiasis Control Peng Zhenhua et al. (276)
3. The Transformation Mechanism of Achievements from key projects--Case analysis of the two national key projects the Staff (287)

4. Establishment of Management System for the National Key
Projects Participated by Several Provinces the Staff (291)
5. Two Projects Mangement on a Tetrad System Zhang Yushi et al. (297)
6. Sticking to the Combination of six forms
and better manage the item Qi Gen-Shen et al. (301)
7. Engineering Arrangment and Management of Oncomelania Elimination
and Schistosomiasis Control Gui Linnan (306)

Research Progress

1. Study and Development on Balloonfish Peng Zhenhua (313)
2. Analyzing the Benefit of " Flourishing Forests and Out-wiping
Oncomelania" Model Liao Jinlin (317)
3. Investigation and Control of Pest Peng Zhenhua et al. (321)
4. The Relationship between Duck Rearing and Snail Density in River
Beaches Zhu Jiming et al. (324)

兴林灭螺、综合治理、开发“三滩”研究

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长江中下游的湖北、湖南、江西、安徽和江苏五省，地理位置处于东经 111° — 123° ，北纬 28° — 34° 之间。跨中、北亚热带季风湿润气候区，水热资源丰富。年平均气温 16.0 — 18.5°C 。沿江年均降水 1350 — 1750mm 。自然条件十分优越，是我国主要经济发达地区之一。但长期以来，该地区为血吸虫病流行的重疫区，人畜感染率高。特别是前几年，螺情病情持续上升，瘟神又有卷土重来之势。我国政府每年投入大量人力、物力进行药物灭螺、查病治病，虽取得了一定的效果，但始终未能根治。其主要原因是滩地湿生植物群落的生态环境是血吸虫的唯一中间宿生——钉螺 (*Oncomelania hupensis*) (钉螺亚种肋壳钉螺) 的适宜孳生地，因此消灭钉螺是消灭血吸虫病的重要环节。^①

长江中下游的江滩、洲滩和湖滩面积约 50 多万 ha。植物以挺水生的荻 (*Micanthus sacchariflorus*)、芦苇 (*Phragmites communis*)、柳树 (*Salix* spp.) 和耐水湿的莎草 (*Cyperus* spp.)、苔草 (*Carix* spp.) 为主；土壤为非地带性的淤积潮土，pH 值一般为 6—8。尤其是滩地大多呈冬陆夏水状况，水流、水位变化大，且地形复杂，为非封闭状态，给药物灭螺或筑低圩等方法灭螺带来了很大困难，六千多万人民的健康受到威胁，目前已成为我国血防工作的重点和难点。

长期以来，血吸虫病危及长江中下游湖区五省人民的健康，同时也制约着滩地的合理开发利用和该地区的经济发展，滩地一直处于荒芜和半荒芜状态。芦苇滩钉螺密度大，且防治困难，成为血吸虫病的主要病源地。

为了探寻一种既有经济效益，又能灭螺防病；既能充分利用滩地土地资源，又不影响长江水道畅通的经营模式，成了林学、农学、水利、卫生和生态学家近年来十分关注的课题。

长江滩地引进欧美杂交杨进行造林始于 70 年代。1982 年，安徽省安庆市新洲外滩芦苇衰退后，实行毁芦造林，1986 年发现杨树生长良好，有些造林区的钉螺密度和当地人民血吸虫病感染率均有一定程度下降，引起了血防部门和省有关领导的重视。当时安徽省人民代表大会常务委员会副主任魏心一同志委托安徽农学院彭镇华、康忠铭二位教授等，深入疫区进行了为期三个月的全面考察，对其可行性进行了系统论证，并选取试点，科学规划，从而正式开始了“以林为主，灭螺防病，综合治理和开发滩地”的生物系统工程研究。1990 年卫生部和林业部正式立项进行“兴林灭螺、综合治理、开发“三滩”的研究。

在全面调查和深入研究的基础上，作者提出了复合效益的生态大农业概念：即根据