研究结合起来。为此, 我们提出如下研究框架(图 1) , 供进一步研究参考。

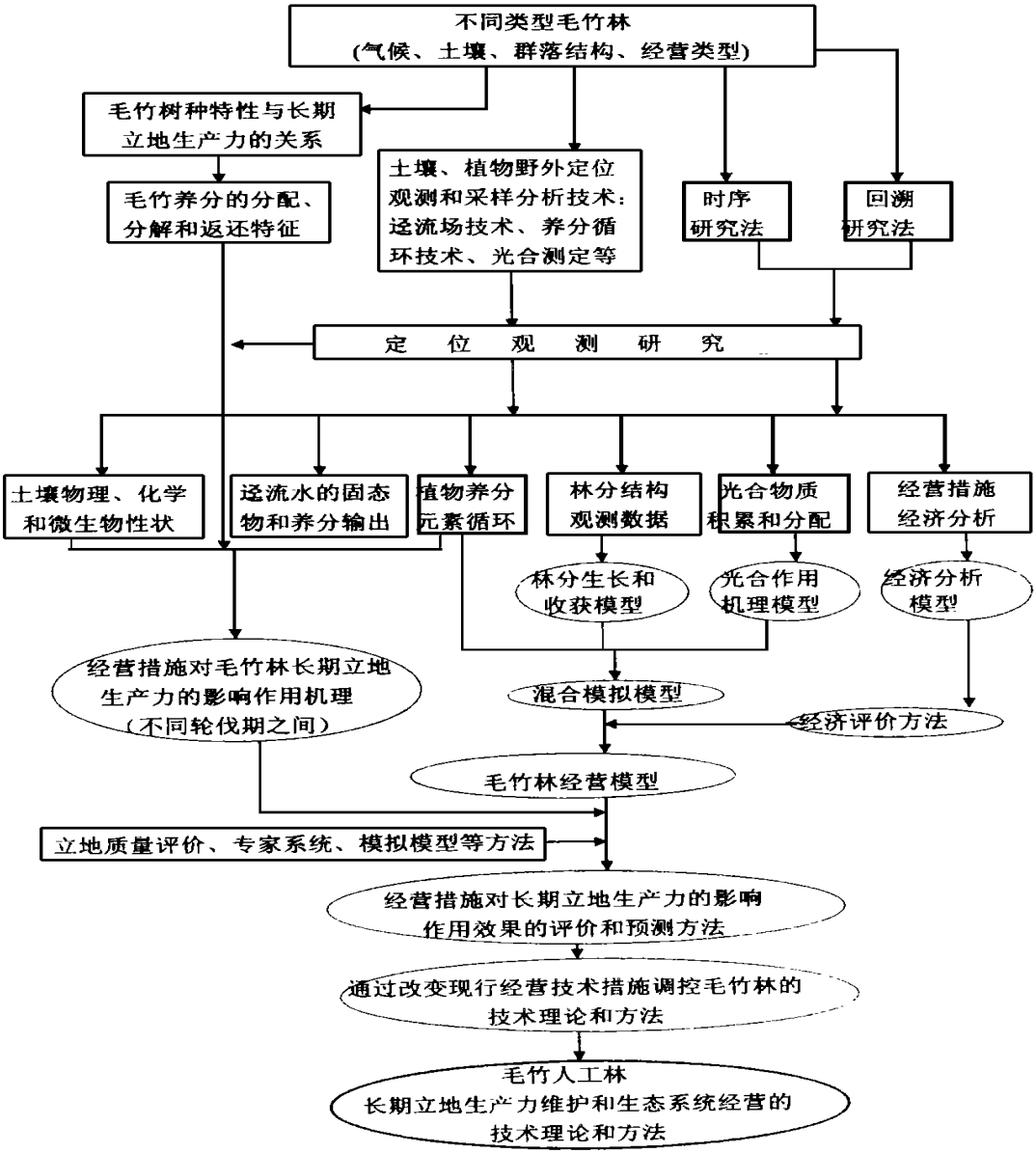

图 1 毛竹林长期立地生产力维护技术的研究框架

笔者认为, 通过系统的人工竹林生态系统管理理论和技术的研究, 竹林资源的培育技术将实现从现有的经济效益为目标的低产林改造技术和竹林丰产栽培技术, 向以保护竹林内外环境、维护竹林生态系统稳定性和竹林长期立地生产力, 以及减少对立地外环境污染为核心的生态系统可持续管理技术的转变和突破; 从目前以经验性试验为基础的林分密度管理技术和土壤管理技术, 向充分考虑竹林系统生长、结构和功能独特性, 以能反应经营措施效应的生态模型为基础的经营技术体系的转变和突破; 从现在以施用化肥为主的地力管理技术体系向产业化开发使用高效微生物组群制剂为主的生态农业体系的转化和突破。以生态系统理论为基础

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的生态系统管理技术的建立和实施将实现人工林集约经营中的一次革命性变革。

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In terms of the research of long-term site productivity in the world and the status of management and researches of bamboo forests in China, the current status of long-term site productivity, impacting factors and its research strategies were reviewed and discussed. Meanwhile, the research periodic term and frame were put forward. The chronosequence, retrospective and long-term study were introduced for solving the "long-term" problem in the research frame. In the evaluation and prediction of the impact of management practices on long-term productivity, the methodology on site classification and evaluation, expert system and computer simulation models were mentioned, so as to achieve re-adjusting the long-term site productivity by changing the current management practices. As for the maintaining the long-term site productivity, it was proposed that the research of effective microbes should be emphasized for producing the man-made effective microbes in future. It was also suggested that the sustainable ecosystem management techniques should be studied for reducing the risk of the damage on the biodiversity and stability of managed bamboo forests, so as to establish the theory and practical techniques of ecosystem management of bamboo forests.

bamboo forest; long-term site productivity; research strategy; ecosystem management

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